APRIL 25, 1923

THE RUBBER AGE

VOL. XIII. NO. 2

Copyright, 1923, by The Gardner, Moffat Co. Inc.

TABLE OF CONTENTS

NEWS SECTION

Rubber Industry Nears Billion Mark 49
Rubber Investigation Wasteful, Says O'Neil 49
Goodrich Promotes Well Known Men 50
Meeting of Safety Council 51
Goodyear Rescinds Kennedy Contract 52
Stadelman Elected Goodyear President 53
Ajax 1922 Earnings 55
Import and Export Statistics 56

FEATURE SECTION

Railroads and Mechanical Rubber Goods 57
Some Problems with Rubber Soles 59
By Morris Omansky
Is the Crepe Sole Just a Fad? 61
Labor Handicaps Philippine Rubber Culture 63
By F. A. Seiberling
Technical Abstracts 64
Rubber Restriction Notes 65
By E. G. Holt
South America Scrambling for American Rubber Plantations 66

MARKETS

Cottons and Fabrics 67
Chemicals and Compounding Ingredients 68, 69
Crude, Scrap, Reclaimed Rubber 69
Patents, Trade Marks and New Incorporations 70

PUBLISHED ON THE 10th AND 25th OF EACH MONTH BY

THE GARDNER, MOFFAT COMPANY, Inc.

ADDRESS ALL CORRESPONDENCE TO BUSINESS AND EDITORIAL ROOMS: 225 FOURTH AVENUE, NEW YORK

Telephone: Stuyvesant 4552

PUBLICATION OFFICE: HIGHLAND, N. Y.

Advertising Forms Close Ten Days Before Date of Publication. Rates for Advertising Will Be Furnished on Application. Subscription Price: $2.00 per Annum. Single Copies 10 Cents. Canada, $2.50 per Annum. Foreign, $3.00 per Annum.

F. R. HENDERSON & CO., Inc.

CRUDE RUBBER

111 BROADWAY, NEW YORK

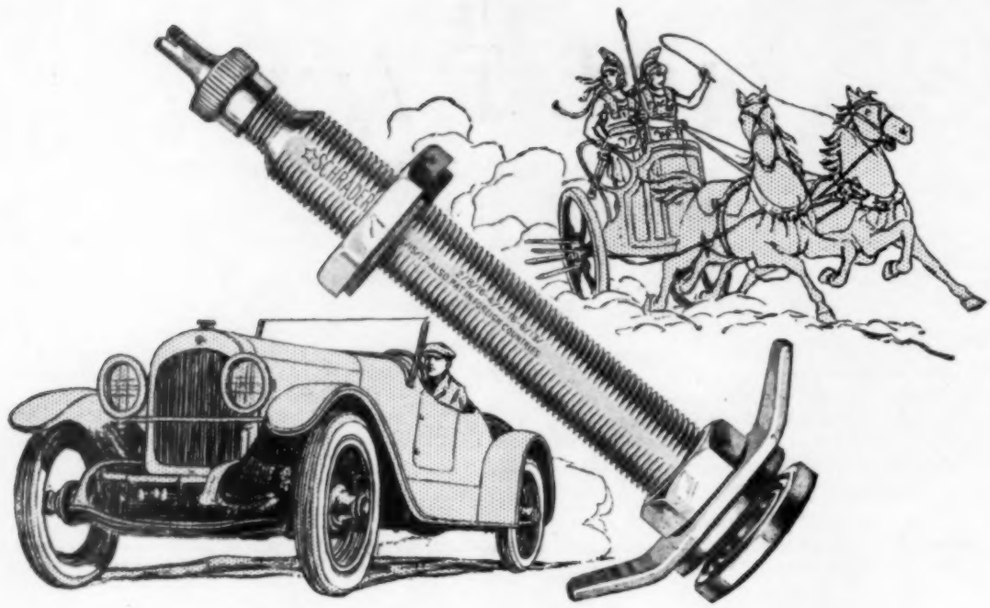
CABLE ADDRESS
"REDSONDER, NEW YORK"

LIEBER'S
A. B. C. 5th EDITION and
PRIVATE CODES

LONDON
HENDERSON, FORBES & CO., Ltd.

SINGAPORE
HENDERSON BROS., LIMITED

BATAVIA
HENDERSON BROS., LIMITED



The day of the tire valve

GENERAL GEORGE WASHINGTON could travel no faster than did Julius Cæsar 1700 years before. The horse still reigned supreme.

Yet a little more than a century after Washington's time, millions of people throughout the world smashed the speed records of the fastest horse. The motor car had loomed above the horizon.

The automobile, however, owes to pneumatic tires and especially to tire valves a debt that can hardly be reckoned. For the real development of the modern car dates from the first successful use of pneumatic tires. And the life of pneumatic tires depends in great measure upon the efficiency of their tire valves.

Because of air-tight tire valves the motorist's range of travel is practically unlimited. Yet, although he gives deserved praise to motor and tires, he often does not realize the essential part his tire valves play in his dashes through city and country.

Schrader Universal Tire Valves are with him constantly on every trip. From the very birth of the automobile industry they have been successfully retaining air in pneumatic tires. They were on the first of these tires made in the United States. They are on the latest.

Improvements in their design and manufacture have kept step with the development of motors and tires. Into Schrader Tire Valves goes the experience of many years in designing and perfecting valves that are absolutely air-tight and give long and efficient service.

Because of their constant, unfailing performance in holding air and helping to prolong the life of tires, manufacturers can rely on getting the best product that human and mechanical skill can produce.

Manufacturers and supply houses can always get prompt shipment of Schrader Valve Insides, Valve Caps, Bridge Washers, Hexagon Nuts, Rim Nuts, Dust Caps, and Bushings from our large stocks.

A. SCHRADER'S SON, Inc., Brooklyn, New York

Chicago Toronto London

Manufacturers of Schrader Valve Insides, Valve Caps, and Tire Pressure Gauges

SCHRADER

TIRE VALVES

THE RUBBER AGE

The Only Twice-a-Month Rubber Publication

VOL. XIII. APRIL 25, 1923 No. 2

RUBBER APPROACHES BILLION DOLLAR MARK

A. L. Viles Says Good Business Conditions Are Reflected Through Increased Crude Rubber Consumption and Employment—1922 Sales Amounted to $906,178,000.

NEW YORK, April 2.—That the rubber industry in the United States is approaching a billion dollar business annually is indicated in a statement issued today by A. L. Viles, General Manager of the Rubber Association of America, Inc.

"Statistics based upon reports to the Rubber Association from manufacturers in this country show that the sales value of rubber products in 1922 amounted to $906,178,000," Mr. Viles said. "This volume of business indicates not only the remarkable recuperation of the rubber industry since the nation-wide depression of 1920-1921 but further the great development and importance of the industry today.

"The Rubber Association is issuing today to its members a special report based upon statistics compiled from the second semi-annual questionnaire for 1922. The facts regarding labor, sales value of product and rubber consumption are based upon reports from 260 manufacturers, 37 importers and dealers and 6 reclaimers, representing approximately ninety per cent of the manufacturers and importers in this country, who produce and handle ninety seven per cent of the nation's rubber business.

"A comparison of the two six months' periods of 1922 shows an increase in the number of persons employed in the industry from 110,104 to 146,330 and an increase in the sales value of the product of approximately ninety million dollars. The recovery in the rubber industry would be even more evident if the efficiency of the manufacturing could be measured and compared with 1919 and the early part of 1920.

"A further striking illustration of the recovery of the industry compared to conditions prevailing in 1921 is reflected in the amount of crude rubber consumed. The figures for 1921, show 181,400 tons of crude rubber absorbed by the whole industry compared to 289,921 long tons in 1922"

AMERICAN BLUFF?

A resident of Penang is perturbed over the British solution of the rubber problem in the Far East. He, therefore, addressed the editor of the *Straits Echo*, seeking light on the significance (referring to the Philippine project) of recent cables received from New York and Washington. The editor in reply wrote as follows:

"It is the intention of the Stevenson Committee and of the local government to withdraw restriction as soon as the stocks have been cleared up and a normal relationship between supply and demand established — an intention which every sound economist will approve and endorse. Personally, we regard all cables on the subject emanating from New York or Washington as part of an American game of 'bluff'."

India Earns $274,630 in 1922

The balance sheet of the India Tire and Rubber Co., Mogadore, O., shows that the company earned $274,630 for the year 1922. Recently the directors declared a quarterly dividend on the company's capital stock of 1¾ per cent. The balance sheet also shows that a deficit of $274,487 was carried over from 1921.

Fire Damages Rubber Plants

The plants of the Home Rubber Co. of Trenton, N. J., and the MacKenzie Rubber Co. of Whitewater, Wis., have recently been damaged by fire. The estimated loss of the MacKenzie company is about $25,000, while the engine room of the Home Rubber Co. was burned out. The room is being repaired so that the plant can continue operation without interruption. A short circuit is said to have been responsible for the fire.

RUBBER INVESTIGATION WASTEFUL, SAYS O'NEIL

Vice-President of General Tire & Rubber Co., In Statement Says That $500,000 Government Appropriation for Investigation of Rubber Lands Is Waste of Money.

In a statement recently issued by W. O'Neil of the General Tire & Rubber Co., and which appeared in several newspapers, the proposal to investigate the possibilities of the Philippines and South American countries as rubber producing lands, using the recently appropriated fund of $500,000, is looked upon as a waste of money. Mr. O'Neil says that "ten-cent-a-day" labor under the American flag would never be countenanced and that adequate reports are now available in government agencies on the Philippines. "The recent agitation," goes on the statement, "resembles hysteria."

The complete statement follows:

"Much as every American would like to see the production of crude rubber dominated by Americans, and all the rubber necessary for American use grown under the American flag, the fact remains that it is not practical as an economic proposition. The subject has long since been investigated very carefully and thoroughly, and the results are available in dozens of responsible places so that the recent decision of the Government to spend $500,000 for 'investigation' means a plain waste of that much of the people's money.

"This refers, of course, to the highest grade rubber, hevea, of which Great Britain grows about 70 per cent of the world's supply, on the Malay Peninsula, and of which the United States uses the greater part. Hevea rubber is a native of Brazil, and was transplanted across the world in plantation form, over ten years ago, when the Brazilian Government, which then had a monopoly held its supply and ran the price up to $3.00 a pound.

"The Dutch have developed other plantations not far from the British rubber territory, so that the two now supply practically all the world's needs, and the output of original Brazilian rubber is now negligible.

"There is, in fact, an overproduction of crude rubber at the present time and the development of an American enterprise for rubber growing, as now proposed, would only make an unprofitable industry more so.

"The Philippine Islands are suggested for the proposed American plantations. Rubber men generally are agreed that Philippine rubber is not as good as that grown in Brazil or the Malay Peninsula. Climate and soil have a great deal to do with this. It is also well known that even if Philippine rubber were as satisfactory as that grown in the Federated Malay States or Java, it would be necessary to use ten-cent-a-day coolie labor in American possessions to produce it at a competitive price. The charges necessary in

(Continued on Page 54)

GOODRICH PROMOTES WELL KNOWN TIRE MEN

Executive promotions made necessary by the rapid increase of business are announced by W. O. Rutherford, Vice President of the B. F. Goodrich Rubber Company. The announcement indicates that several men who are well known in the tire field are taking on greater responsibilities, and that their experience and ability have created for them new positions in which they can render a wider and more beneficial service to the trade.

The men are: William A. Johnson, H. M. Bacon, A. G. Partridge and L. A. McQueen. For several years Mr. Johnson has been manager of automobile tire sales. He now becomes manager of merchandising of the tire division. Mr. Bacon becomes manager of branch operations with general supervision over the 110 Goodrich branches. On the other hand Mr. Partridge succeeds Mr. Johnson as director of sales of automobile tires to dealers. For some time Mr. Partridge has been tire sales manager for Eastern districts. Mr. McQueen, who has made an enviable record as sales promotion manager, succeeds E. D. Gibbs, resigned, as advertising manager. In addition to his new duties Mr. McQueen will continue to supervise the sales promotion work with the dealers and will correlate it with the varied advertising activities of the Goodrich organization.

Bailey Heel Output Increases

The Bailey Rubber Heel Co. of Binghamton, N. Y., has leased two buildings from the Achilles Tire and Rubber Co., as well as having purchased three lots, 150 by 175 feet. Th company plans to turn out 500,000 rubber heels a month, according to an announcement recently made by David F. Rice, treasurer.

The company started to manufacture rubber heels in Binghamton about a month ago, starting with a production of 10,000 pairs of rubber heels a day. Within the next two months output is expected to increase to 500,000 pairs a month. The Bailey company has its principal factory at Beverly, Mass., where 1,000,000 rubber heels are being turned out a month.

Garland Goes Bankrupt

Joseph D. Williamson, an attorney, has been appointed receiver for the Garland Rubber Co. of Marion, Ohio. Mrs. Laura M. Mansfield, a stockholder who claims that the company is insolvent, fi'ed the petition. Mrs. Mansfield through her attorney, contends that the company is insolvent, and that the debts are far in excess of the assets. It is also alleged that the management cannot agree on policies and is not protecting and preserving the assets for the benefit of unsecured creditors. It is further stated that William W. McQuate, who holds a chattel mortgage on the majority of the company's assets, is trying to take possession under the mortgage without due process of law.

H. M. BACON
Recently Appointed Manager of Goodrich Branch Operations

LARGER LOADINGS FOR SCRAP RUBBER URGED

The National Association of Waste Material Dealers are conducting an investigation to find out if scrap rubber in Western Territory can be loaded in freight cars to the minimum of 40,000 pounds. So far association members are of the opinion that the baled stock can be loaded to 40,000 pounds, but point out that loose tires will not load as heavily. It is possible that if greater care were taken in loading shipment of loose rubber tires, that the minimum of 40,000 pounds might be loaded. So far their investigation shows that it cannot be done.

The investigation is being conducted as a result of an application of one of the Association's members to the Western Trunk Line Committee to reduce rates on scrap rubber from points in Western Trunk Line territory to Chicago and other points to the basis of the existing rates on rags. Recently a public hearing was held on this subject before the Western Trunk Line Committee in Chicago. The carriers representatives expressed the opinion that should there be a reduction in rates there should also be an increase in car loading so as to conserve equipment.

Liberty Rubber Starts

The Liberty Rubber Co., Barberton, has been incorporated at Columbus for $30,000 by Frank Zacher, Francis Zacher, Adam Tomcik, George Hanzel and Stephen Tanic, former stockholders of the Anchor Rubber Co.

The Anchor Rubber Co. was sold to its new incorporators for $15,000 following a recent ruling by Judge Ahern of Summit County Common Pleas Court. The name was then changed.

The company manufactures rubber gloves and accessories.

OUTLOOK FOR 1923 IS BRIGHT, SEGER SAYS

Charles B. Seger, President of the United States Rubber Co., told stockholders at the annual meeting held in New Brunswick, N. J., on April 17 that conditions in all branches of the rubber industry have greatly improved since the close of last year. The company, he said, is contemplating no new financing.

In his remarks to the stockholders Mr. Seger said:

"The tire business has shown substantial gains over the corresponding period of last year. As a result of the remarkable increase in automobile production, trade conditions among tire dealers indicate a largely increased demand for our product over last year. This is especially true with respect to sales to dealers, in which there has been an increase of over 80 per cent compared with the same period last year.

"Generally speaking, conditions in the whole tire industry are much improved over the same period last year. Business for the first quarter of 1923 in mechanical goods shows very substantial increases over last year, with no indications of a cessation of the demand. The situation clearly reflects the improvement in general business conditions, particularly the number of orders calling for rush delivery. Mechanical goods mills are operating at the highest rate of production in the company's history.

"Footwear business for the first quarter shows an increase of about 30 per cent over the same period of 1922, and advance orders for summer and fall delivery have been received in very encouraging volume. The outlook for this branch of the business is most satisfactory, since the severe winter just closed has reduced dealers' stocks to minimum, as stated in the 1922 report. The company is in sound financial condition and no new financing is contemplated."

No changes in the Board of Directors were made at the meeting.

Rubber Technologist Examination

The United States Civil Service Commission announces an open competitive examination for Junior Technologists. The examination will be held throughout the country on June 6.

Applicants must have graduated from a four years' high-school course, and in addition must have a degree from a college or university of recognized standing with the completion of at least 118 semester hours. Applicants, who have completed at least two years of such a course, may substitute twelve months of qualifying experience for each of the other years lacking the completion of such a course.

The examination will consist of questions on general chemistry and elementary physics, mathematics up to and including calculus, practical questions on each optional subject chosen. The optional subjects are rubber technology, leather, paper, textile, oil and general technology.

The purpose of the examination is to fill vacancies in the Bureau of Standards, Department of Commerce, for duty in Washington, D. C., or elsewhere, at $1,200 to $1,500 a year, plus the increase of $20 a month granted by Congress. Full information and application blanks may be obtained by addressing the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the post office or custom house in any city.

SAFETY COUNCIL HOLDS IMPORTANT SESSION

The most important development at the session of the Executive Committee of the Rubber Section of the National Safety Council, held in Akron on March 22 and 23, was a decision to proceed with the work of defining a standard safety practice for all the important branches of rubber manufacture. Members of the council spent much of their time to the discussion of ways and means of preventing fire in rubber factories through static electricity. Suggestions centered about a plan to reduce static by regulating the humidity of air in rubber factories by washing it, and also by grounding it.

C. B. Mitchella of the B. F. Goodrich Co., chairman of the Engineering Committee, presented as the first report of that committee tentative drafts of safety codes for vulcanizers and for mills, washers and calenders. The committee requested Mr. Mitchella to prepare a full list of subjects which should be covered by pamphlets and the writing of which should be assigned to some well known authority in the rubber engineering world.

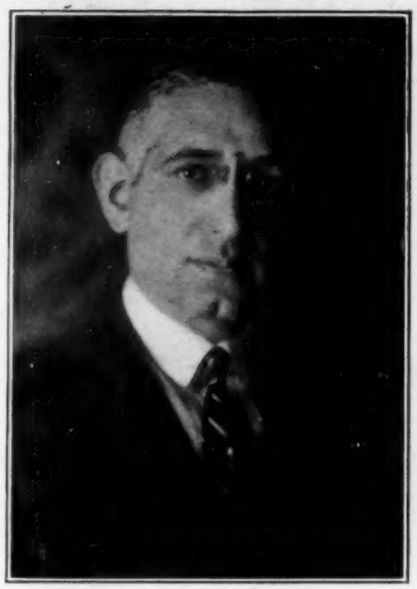
The same plan will be followed with regard to several practice pamphlets on "Handling Materials" under the Chairmanship of W. L. Schneider, also of the Goodrich Company. The Committee hopes within a year or two to have a highly authoritative safety code covering every ordinary feature of rubber manufacture. S. J. Williams Chief Engineer of the National Safety Council, made the unqualified statement that the rubber industry was better organized for safety than any other industry in the country.

Among those who attended the meeting were: E. W. Beck, United States Rubber Co., Chairman; C. T. Wilson, Kelly-Springfield Tire Co., vice-chairman; C. B. Mitchella, B. F. Goodrich Co.; A. M. Partridge, Fisk Rubber Co.; A. L. Viles, New York, secretary of the Rubber Association of America; E. S. Underhill, United States Rubber Co.; C. F. Horan, Hood Rubber Co.; E. L. Hewett, United States Rubber Co.; H. H. Graef, Goodyear Tire & Rubber Co.; S. J. Williams, chief engineer of the National Safety Council, Washington, D. C.; W. L. Schneider, B. F. Goodrich Co.; G. J. Lyons, U. S. Rubber Co.

Corduroy Moves to Detroit

L. A. Brown, president and general manager of the Corduroy Tire Co., has been in Detroit perfecting arrangements for transferring the company's offices from Grand Rapids to Detroit. The company will occupy a large suit of offices in the First National Bank Building.

The production schedule of the company's factories in Grand Rapids is expected to be increased to 1,000 tires a day within the next month, and will then be increased to 1,500 to meet current demands.



A. L. SCHEUER

Recently Elected President of Kelly-Springfield Tire Co.

Rubber Market in Ireland and Scotland

The market for manufactured rubber goods in Ireland and Scotland is fully covered in a report of Gordon B. Johnson in the March 10 issue of the *Commercial Intelligence Journal* of the Department of Trade and Commerce of Canada. A copy of this journal may be obtained by writing to the above in Ottawa. The report takes up the beginnings of plantation rubber, rubber roadways, tires and tubes, footwear, floor coverings, garments, mechanical rubber goods, rubber in the home and medical profession and import statistics.

Meeting to Dissolve Wilkie

C. M. Christenson, secretary of the Wilkie Rubber Co., Coshocton, O., announces a stockholders meeting to be held in Cleveland April 10, to consider a proposal to dissolve the company. This company manufactures rubber heels and had its plant in the same building with the Midland Tire and Rubber Co. for which receivers were asked some time ago.

Knox Elects New Directors

W. E. Johnson of Lexington, Kentuckey, T. Robt. Berg of Mt. Vernon, O., and W. M. Perkins of Marion, have been elected the board of directors of the Knox Tire and Rubber Co. at the annual meeting of that company held March 13.

Large Contracts Obtained

The Hodes-Zink Co. Fremont, Ohio, manufacturers of rubber fabric have made contracts for 800,000 yards of lining to be used in bags and 700,000 yards of other rubber fabric. This company has advertised for 100 more men, women and girls to work in the factory.

TIRE ASSOCIATION SHOWS INCREASE IN MEMBERSHIP

Every section of the country is now represented in the National Tire Dealers' Association. In addition to twenty-five local organizations with memberships ranging from ten to ninety tire dealers, there are also affiliated with the N.T.D.A. several hundred retailers located in sections where local associations have not been organized. This represents a marked increase in numerical strength of the National Tire Dealers' Association since its 1922 Convention at Milwaukee. The increased interest in the tire association movement is construed as a reflection of improved conditions throughout the industry.

Officials of the N.T.D.A. are now receiving the full cooperation of the leading tire manufacturers and their representatives in the promotion of local associations, and in attaining the objects of the National body which are primarily a betterment of merchandising in the retail tire field.

In commenting on the development of the N.T.D.A. during the last five months, President George J. Burger declared that while last year tire dealers in general were more or less skeptical about the possibilities of the N.T.D.A., their attitude has now been changed to one more favorable to the association's promotion.

"Since last November," says President Burger, "conditions in the tire business have shown a decided improvement. Manufacturers have realized that a properly functioning association of tire dealers can prove a valuable asset to the industry, and as a result they are cooperating more energetically with us in our efforts to get the dealers together in a movement to improve their business status. Several of the important aims of the N.T.D.A. to improve general conditions have already been accomplished. Chief among these, of course, are a reduction in the number of dealer representatives appointed by the manufacturers and the turning over to the dealers of what are commonly known in the trade as commercial and national accounts.

"The policy providing for the selection of a smaller number but a higher grade of dealer representation has been practically universally adopted by the tire manufacturers. The legitimate dealer has always complained that the tire retail field has been overcrowded and that the tire manufacturer made it too simple a matter for a man to engage in the business. We feel that under the new policy, which in some cases reduces the number of dealers in large cities by more than 80 per cent., the manufacturers will not only receive a greater volume of business, but will have a list of dealers that will not be switching from one line of tires to another throughout the year.

"While all of the larger companies have not as yet turned over their national and commercial accounts to the dealers on a basis that permits them to make a reasonable margin of profit, the practice is daily gaining followers.

"Even these two policy changes have been sufficient to prove to the average dealer that some good can come to him through the efforts of the N.T.D.A."

The following cities are included among those in which local tire dealers' associations have been formed: Akron, O., Baltimore, Md., Cedar Rapids, Ia., Chicago, Ill., Cincinnati, O., Cleveland, O., Danville, Va., Des Moines, Ia., Detroit, Mich., Duluth, Minn., Flint, Mich., Hartford, Conn., Jacksonville, Fla., Lexington, Ky., Memphis, Tenn., Milwaukee, Wisc., Minneapolis, Minn., New York City, Pittsburgh, Pa., Poughkeepsie, N. Y., Portland, Ore., St. Paul, Minn., Sterling, Ill., Springfield, Ill., and Washington, D. C. In addition there is a state association in Wisconsin and work under way to form similar bodies in Illinois and Connecticut.

CUBA RANKS HIGH AS RUBBER CONSUMER

The production of sugar and the price paid for sugar constitute Cuba's financial and business barometer. The imports of all rubber products, therefore, is affected by the prosperity of sugar growers. The outlook this year in Cuba is one of greatly improved commercial activity, the Department of Commerce through the bureau of Foreign and Domestic Commerce reports. A. M. Walker of the Rubber Division has just compiled a monograph in which facts affecting the importation of rubber products in Cuba are set forth.

Last year, the statement says, Cuba took 7 per cent of the total volume of rubber products exported from the United States. This compares with 6.4 per cent in 1919, and 3.5 per cent in 1916. In other words Cuba imported from American concerns in 1922 $2,388,098 of rubber products; $3,340,986 in 1919, and $1,212,032 in 1916. Cuba's total foreign trade with all countries reached $1,351,000,000 in 1920, but in 1921 it dropped to about half that sum.

The report sets forth the fact that Cuba imported from the United States in 1922 $1,104,373 in pneumatic tires, $149,789 in tubes and $196,391 in solids. Bicycle tires are also in demand, it being estimated that there are 25,000 bicycles in service in Cuba. American gums, fabrics, cements and repair machinery are well represented in the Cuban market. Exports of American tire materials in 1922 totaled 58,725 pounds, valued at $18,384.

Road conditions in Cuba tend to increase current demands for tires, and the report states that through the extension and improvement of the highway system there will occur an even greater enlargement of the tire market, following the increased use of automobiles. At present there are about 33,800 motor vehicles in service in Cuba.

In 1922 Cuba imported from this country $157,002 worth of belting, hose and packing, compared with $264,934 in 1921, $742,659 in 1920 and $454,908 in 1919. The plants that demand most of the belting and hose are those that market and produce sugar and its by-products—rum, molasses, alcohol. Collectively Cuba is not a manufacturing nation, except for the many sugar grinding mills and certain tobacco factories. There are also four breweries in Cuba, and a number of small shoe factories and electric light and power plants.

Cuba's demand for rubber footwear is continuously increasing. For example, the country took from American manufacturers 626,662 pairs of overshoes, rubbers and canvas rubber-soled shoes, valued at $416,778 in 1922 and 219 pair of boots, valued at $913. The bulk of the rubber footwear trade in canvas rubber-soled shoes, and Cuba is considered the best export market for American made canvas rubber-soled shoes. In 1922 Cuba took 20½ per cent of the total number of pairs exported.

For footwear and clothing Cuba is the second best market for United States waterproofed exports, being surpassed only by the Dominion of Canada.

In the druggists and sundries line Cuba imported from the United States about 32,797 pounds of sundries, valued at $44,536. This is another line in which the Cuban market ranks high, being surpassed only by our exports to Canada and England.

China's Rubber Market is Poor

The nearness of the crude rubber market to cheap labor is taken advantage of by such concerns as the Dunlop Rubber Co. and the Netherlands Guttapercha Co. Consequently, assistant Trade Commissioner G. A. Rolf Emery of the Canadian Department of Commerce, advises exporters not to consider the Chinese market, in a report appearing in the March 31 issue of *The Commercial Intelligence Journal* (Canada).

In 1921 China imported rubber goods totaling $1,623,231, 80 per cent of which was in tires and tubes. Other rubber goods demanded by the Chinese are suction hose, garden hose, fire hose, rubber belting, jointing, rubber tubing, electrical rubber goods, and mechanical sundries.

The suction hose used in China varies in style and construction. Generally speaking the report says, it is divided into two groups—American and others. The American suction hose is strengthened by a flat wire reinforcing on the inside of the tubing. Although the flat wire rusts it is popularly demanded. Stocks carried have the following diameters: 2-inch, 2½-inch, 3-inch, 3½-inch and 4-inches.

Since buildings are not high as a rule in China, fire hose need not withstand the high pressure demanded in the United States. Most of the demand is for plain canvas hose, although there is a limited market for rubber-lined pure hemp hose.

The Chinese demand four colors of rubber sheets used for washers, packing and valves. The colors are red, white, grey, black. The red and white are sold in sheets 1/16-inch, ⅛-inch, ¼-inch, ⅜-inch, ½-inch, ⅝-inch, ¾-inch and 1-inch thick. The grey sells in quarter sizes.

Although China is a large country it is not any too fertile a rubber market for exporters of manufactured goods. Therefore, the trade commissioner advises small firms especially to conserve expenses by keeping away from the Chinese market.

Ott Rubber Builds

The Ott Rubber Co. of Dubuque, Iowa, is erecting a new plant, and if current plans are carried out it will be fully equipped and in operation by August of this year. Recently President Ott conferred with officials of the Welton Engineering Co. regarding plans and specifications for the new plant. The factory will have a capacity of 2,000 tubes per ten hours.

STADELMAN ELECTED TO PRESIDENCY OF GOODYEAR

At a recent meeting of the board of directors of the Goodyear Tire & Rubber Co. several changes in the executive management of the company were approved by the directors. In connection with the changes the company issued the following statement.

"The Board has approved a plan proposed by W. G. Wilmer for the executive management of Goodyear and announcement thereof is accordingly made. Mr. Wilmer becomes chairman both of the Board of Directors and the Executive Committee. He will permanently locate in New York, continuing to assume and carry full responsibility for the supervision and guidance of Goodyear management. He will retain the presidency of the California and Canadian companies.

"G. M. Stadelman has been elected President of the parent company at Akron. P. W. Litchfield assumes the title of First Vice President, and F. K. Espehhain, who will continue as Mr. Wilmer's personal assistant, was also named a Vice President."

Receiver for Lomer Tire

The Lomer Armored Tire Co. of Newcastle, Ind., has passed into the receiver's hands. Judge Fred. C. Gause recently appointed Harlie J. Pressnall as receiver. The petition was filed by the Dexter Rubber Manufacturing Co. of Goshen, N. Y., alleging that the Lomer company has assets of $200,000 with liabilities of $135,000. The Dexter company asserts that the tire company has not enough liquid assets to pay a $508 bill. Attorneys for the Lomer concern state that the Dexter company was used as medium in getting a receiver appointed.

The Lomer Armored Tire Co. was organized three years ago with a capital stock of $3,000,000. The petition states that $1,440,000 worth of stock was sold at a par value of $10 a share. Receivership, it is said, will wipe out many of the smaller stockholders.

Lisbon Location Sought

The Richaby & Barber Co., manufacturers of a composition of rubber used in making belts for machinery, seeks a location near Lisbon, Ohio. Officials of the company have been in communication with the Lisbon Chamber of Commerce. In all probability the company will be given a 30 day option on the building formerly occupied by Bowman-Vaughn Co.

Theodore Brown Joins Brunswick

Theodore Brown, formerly Chicago representative of the General Tire & Rubber Co., has joined the forces of The Brunswick - Balke - Collender Company, rubber division. Mr. Brown will make his headquarters at the general offices of the company at Chicago.

LEONARD KENNEDY CONTRACT RESCINDED BY GOODYEAR

Directors of the Goodyear Tire & Rubber Co. at the company's annual meeting, held in the latter part of March, announced that the company's contract with the Leonard Kennedy Co. of New York had been cancelled.

Terms of the original contract with the Kennedy concern are: The Goodyear Tire & Rubber Co. was obligated to pay $250,000 a year and a bonus or commission amounting to five per cent on the earnings of the company in excess of $10,000,000 and not exceeding $20,000,000. In return for this consideration the Kennedy concern agreed to furnish the president and treasurer and pay their salaries of $50,000 and $15,000 a year respectively. These officials were to supervise the Goodyear industries, while the Goodyear organizations agreed to provide and maintain a residence for the president.

In announcing the revokation of this contract President Wilmer said: "Any action taken by the directors with reference to the Kennedy contract neither involves or contemplates any change in the official management or control of the Goodyear." It was further explained that "control" means that the directors will control the company.

Rubber Paving for Historic Bridge?

Rubber pavement may save the historic Harvard Bridge which spans the Charles River between Boston and Cambridge. Rubber pavement could be installed, it is said, at a cost of $500,000.

Mayor Curley of Boston and Day Baker, chairman of the legislation committee of the Massachusetts Automobile Dealers, are investigating the advisability of installing rubber pavement in that city. They are also seeking the cooperation of Akron rubber officials. One of the advantages of rubber pavement is its low maintenance cost. Others are the reduction of noise and vibration, its light weight and its nonskidding characteristics.

Harvard Bridge is built along strong lines, but it is not able to withstand the vibration of street cars which cross it. It is pointed out that rubber pavement will substantially reduce this vibration which may mean the saving of the old bridge.

Miller Makes Addition

The Miller Rubber Co. will build a new factory building to cost about $325,000. The new building will be four stories high, 285 feet x 97 feet. Recently the company's business has increased to such an extent that officials have decided to start construction work at once.

Rapid Rim Sells Plant

The Rapid Rim Co. of Huntington, Ind., has sold its plant and grounds to The Indiana Rubber Products Corporation. C. H. McDermott of Chicago is president of the new company. The sale price is said to be in the neighborhood of $75,000.

SPRING IS HERE!

Attractive Spring Window Display of the U. S. Tire Company in New York City, Designed by G. A. Smith

10,000 Galoshes For 1923

John G. Magaw of the Hood Rubber Products Co. estimates that the 1923 market for four buckle gaiters for men, women and children will be in the neighborhood of 10,000,000 pairs. Present production is about 7,000,000 pairs, while production for 1922 totaled 4,000,000 pairs.

Magaw says that there is no hold-over stock of galoshes, last year's output having been entirely consumed.

"During the last six months of 1922, the automobile and motorcycle trade used 225,216,753 pounds of crude rubber and the sales value of these products alone totalled $267,823,005. The boot and shoe industry during this same period absorbed 14,390,000 pounds of crude rubber and produced products valued at $63,295,472, while druggist sundries, medical and surgical rubber goods alone had a sales value of $6,484,900.

"The inventory of crude rubber in the United States and afloat for U. S. ports as of December 31st, 1922, showed a grand total of 89,759 long tons on hand and 45,780 long tons afloat."

New Concern Buys Hubbell

The Newton Falls Rubber Co., Newton Falls, Ohio, have completed arrangements to take over The Hubbell Tire and Rubber Co., formerly The Trumbull Tire & Rubber Co. Operations are expected to start early in April.

The new company is capitalized for $250,000 fifteen-year 7 per cent first mortgage bonds and $500,000 common stock, par value $100. The company is headed by R. T. Shindler, president. Other officers are Irvin Jordan and A. C. Apple, vice-presidents; W. W. Peters, secretary; J. A. Nichols, treasurer.

Mohican Rubber Sales Up

The Mohican Rubber Co. of Ashland, Ohio, reports that its business has increased 33⅓ per cent, compared with the same period last year. The company is employing more men, working them in three eight hour shifts. Repairs are being made on the plant, the result of a recent explosion, and will cost the company about $3,000

Gay With Smith Chemical

A. W. Gay is the latest addition to the sales force of The Smith Chemical & Color Co., 257 Water Street, New York City. For several years Mr. Gay was in charge of sales for the Euston Process Co., Scranton, Pa. Mr. Gay has a big following in the chemical color line, and it is expected that he will interest a number of his acquaintances in the products of the Smith Chemical & Color Co.

Kelly Retires $500,000 in Notes

Kelly-Springfield Tire Co. announces to the holders of its ten-year sinking fund gold notes, issued under a trust agreement, dated May 15, 1921, that on May 15, 1923 the said company will redeem $500,000 of the notes at 110 with interest accrued to said May 15. The notes are in the denominations of $1,000, $500, and $100. Redemption will be made at the office of the Central Union Trust Co., 80 Broadway, New York City.

Holcombe Announces Opening

Beginning with April 10 the Holcomb Rubber Co., Inc., will occupy quarters at 9 Hanover Street, New York City as importers and dealers in crude rubber, balata and kindred products.

VENEZUELAN IMPORT DUTIES LEVIED ON RUBBER GOODS

The import duties of Venezuela apply equally to products of all countries.

The duties are calculated on gross weight. Kilo equals 2.2046 pounds avoirdupois. Bolivar equals $0.193, at normal exchange.

The rates of duty are subject to the legal surtaxes calculated on the original duties, and the resulting amount is subject to a sanitation surtax; the total surtaxes amount to 56.66 per cent of the duty. A consular fee of 1 per cent of invoice value of the merchandise is charged, payable at destination.

TARIFF NO.	ARTICLES	Bolivars per kilo. RATE OF DUTY (Not including surtaxes)
245	Teething rings, with or without nipples	1.25
246	Portable rubber baths, and their accessories	1.25
246[1]	Inner pneumatic tubes for motor tires	.75
246[2]	Sheet rubber or rubber in plasters for repairing motor tires and their inner tubes	.75
247	Rubber manufactured in the form of washers or rings, with core of cloth, transmission belting, billiard strips or cushions, horseshoe pads, tires not otherwise specified for vehicles, tires and blades for coffee treatment machines	.75
248	Manufactures of rubber and celluloid, not otherwise specified	2.50
249	Rubber, covered with linen or not, for clothing	2.50
250	Rubber, liquid	1.25
251	Waterproof cloaks and coats	2.50
252	Cement made of rubber and benzine	1.25
253	Rubber bands for footwear	2.50
254	Belts of oilcloth	2.50
255	Sponges, rubber	2.50
256	Floor mats, rubber	1.25
257	Celluloid hooks for shoes	2.50
258	Erasers, rubber	1.25
259	Gutta percha, manufactured or not	2.50
259[1]	Oilcloth weighing more than a thousand grams per square meter (29.5 ounces per sq. yd.); including special surtax of 50% of duty	.375
260	Oilcloth, not otherwise specified. (Sec No. 278[1])	1.25
261	Oilcloth, not otherwise specified, for floors	.75
262	Traveling bags of oilcloth	1.25
263	Nipples for nursing bottles	.25
264	Films for cinematographs	1.25
265	Artificial plants of rubber	2.50
266	Rollers for printing and lithography	.75
267	Heels covered with celluloid	2.50
268	Tubes or piping of rubber, not otherwise specified	.75
269	Tubes or piping of rubber, up to 15 millimeters (about 0.6 inch) outside diameter	2.50
270	Shoes, rubber	2.50
276	Machine packing	.75
278[1]	Linoleum weighing more than a thousand grams per square meter (29.5 ounces per sq. yd.); including special surtax of 50% of duty	.375
542	Waterproof fabrics of wool and rubber	2.50
596	Waterproof cloth of cotton and rubber for the manufacture of raincoats	1.25
597[1]	Cotton fabrics covered with rubber for repairing automobile tires	.75
630	Suspenders, braces and garters of all kinds	10.00
687	Apparatus for the deaf; rubber cushions for invalids; hot water and ice bags; oxygen bags; bellows for thermocauteries; trusses; corn plasters; bougies; bulb syringes; anodyne collars; nasal douches; abdominal bands; bandages; irrigators; syringes; hypodermic syringes; elastic stockings for varicose veins; pessaries; catheters; ligatures; cupping glasses; suspensories	1.25
875[1]	Solid rubber tires mounted on steel rims for auto trucks	.25
876	Wheels for carriages, wagons, and carts; steel wheels mounted on steel axles; and iron wheels with rubber tires, when their diameter does not exceed 30 centimeters (11.8 inches) including wheels so constructed that the rubber tires can be put on in the country	.10
ex895	Accessories, not otherwise specified, for electrical installation:—Rubber insulators for tubes or lamp receptacles; porcelain or rubber rings; rubber washers; rubber, canvas and porcelain tubes for passing wires through	.25
947	Toys for children	.25
952[2]	Water hose of cloth, or of rubber covered with cloth or wire	.75

Republic Rubber Earnings

Republic Rubber Co., Youngstown, Ohio, reports that sales for the first quarter of 1923 show an increase of 54 per cent over the first quarter of 1922.

March, 1923 sales show an increase of 52 per cent over February, 1923. This is the largest month in net sales since October, 1920.

The automobile tire department is working to capacity. The sales of the new Stag truck tire show the great need for solid-pneumatic tires in truck business.

RUBBER INVESTIGATION WASTEFUL, SAYS O'NEIL

(Continued from Page 49)

our immigration and labor laws to make that possible hold startling and dangerous possibilities.

"Most Americans, I think, prefer to have ten-cent labor working for Great Britain or Holland rather than under the Stars and Stripes. There is not much more hope on the American continent itself. High grade rubber cannot be grown in the United States. If we encourage Brazil, in South America, that is a foreign country, and rubber men have not forgotten what Brazil did to rubber prices when she had a chance. That was in peace time, too.

"The only remaining argument advanced by those who wish to plunge the United States into a chimerical scheme now, is that unless we have our own source of supply Great Britain, could cut off in case of war. If we were at war with Great Britain our Navy would necessarily be our dependence. If the Navy could safe-guard the shipment of rubber from the Philippines it could just as easily protect it on the way here from Brazil or Dutch possessions in the Malay Peninsula.

"If the Government is determined to expend $500,000 on rubber I strongly recommend that the sum be deposited at interest at once, as an emergency fund against the "next war with Great Britain," if that ever comes. That money, added to the usual market price, would enable American rubber manufacturers to employ any number of expedients to obtain their requirements during a war period.

"There has been something resembling hysteria in the recent agitation. Rubber is cheaper now than at any time in the last ten years except when the world was flat broke after the World War. The present price is not high and will always be regulated by the law of supply and demand.

"It will be hard to convince practical American rubber men that there is any sense or safety in an investment by them in rubber plantations to compete with Great Britain, Holland or Brazil. It is certain that the General Tire & Rubber company will not encourage the introduction of hordes of ten-cent laborers in American possessions. And America cannot artifically acquire natural resources she does not possess.

"We all regret that the British government has put on the production tax, due to the fact that the plantations have been producing more rubber than the world could use. The fallibility of government in busines is well known. But why aggravate that situation by also putting the American government in the rubber business? In my humble opinion America need not envy or compete with a foreign industry that cannot now find employment for men at ten cents a day."

McGraw Closes Down

It is reported that the McGraw Tire & Rubber Co., East Palestine, O., closed down its factory on April 2. Officials of the company have given out no statement regarding the suspension of operations. In the meantime many of the workmen are finding employment in nearby rubber factories.

Annual Mason Meeting

The annual stockholders' meeting of the Mason Tire and Rubber Co. was held April 2 at Kent Masonic Hall at Kent, Ohio, the following directors being elected: O. M. Mason, D. M. Mason, W. A. Cluff, R. W. MacKinnon, Francis M. Brooke of Philadelphia and R. S. Hyney of Chicago.

Columbus Wants Rotary

According to current reports the Henne-Miller Tire Co. of Columbus, Ohio, is considering purchasing the plant of the Rotary Rubber Co., located near Zanesville, Ohio. At present the Franklin Mortgage Co. of Columbus holds a mortgage on the Rotary plant. No statements as to the probability of the deal being consumated have been made public.

Portland Hails Columbia

Business men in Portland, Oregon, recently observed the opening of the new $250,000 plant of the Columbia Tire Corporation by a program before civic clubs. All visitors were shown the company's plant and shown the process of manufacturing automobile tires.

A.E.S. Committee Report

The 1923 Year Book of the American Engineering Standards Committee shows clearly that the national movement for industrial standardization accomplished more during the last year than in any preceding year and that work has now reached the stage of mass production. Trade associations and general commercial bodies have shown decidedly increased interest in standardization work.

One of the interesting projects that the committee reports satisfactory progress on is the safety code program. Seven codes have been approved: Code of Lighting Factories, Mills and other Work Places; Code for the Use, Care and Protection of Abrasive Wheels; Code for the Protection of Industrial Workers in Foundries; Code for Power Presses; The National Electrical Code, and the National Electrical Safety Code. The report also contains a complete list of the names of all bodies or associations co-operating with the American Engineering Standards Committee.

Kelly Regular Dividend Declared

The Kelly-Springfield Tire Co. has declared its regular quarterly dividend of $2 a share on its preferred stock, payable May 15, to stockholders of record, May 1.

ADDITIONAL TIRE PRICE INCREASES ANNOUNCED

Additional increases in the prices of tires and tubes have been announced by a number of rubber companies among which are Firestone (effective May 1), Yale, Columbus, Michelin, Federal and Pennsylvania.

The Firestone Tire and Rubber Co. has announced its intention of holding off its increase until May 1. In newspaper advertisements appearing on April 13 the company said:

"The postponement of this price revision is possible only because of our realization of the price danger in the British Crude Rubber Restriction Act which became effective November 1, 1922. We were fortunate in our rubber purchases before the Restriction Act increased the price of crude rubber 150 per cent.

"We have always endeavored to champion the cause of better made tires delivered at lowest cost to the tire user by economical manufacturing and distribution. And we are glad of the opportunity to give the car owner the additional saving at this time."

Most companies, however, report that their reserve supplies of crude rubber and finished goods are practically exhausted. This is ascribed to the fact that there has been an abnormal demand this spring for tires and tubes. Akron companies are reported to be turning out at least 110,000 casings daily, the peak in Akron's tire output.

Goodrich Retires Stock

Stockholders of the B. F. Goodrich Company voted at their annual meeting on April 17 to retire 11,880 shares of preferred stock in accordance with charter provisions. All Directors were re-elected. After the close of the stockholders meeting the Board of Directors met and declared the regular quarterly dividend on preferred stock amounting to $1.75 a share, payable July 2 to stockholders of record June 21.

President Work reported on business for the first quarter of the present year, in which he said there had been a marked increase in sales over the same period last year.

Pennsylvania Sales Up

Directors of the Pennsylvania Rubber Co. at the annual stockholders meeting, recently held in Jeanette, Pa., state that sales for the first quarter of 1923 show an increase of more than 40 per cent over the corresponding period of 1922. All directors and officers were re-elected.

Showing Building Operation of the Tire Built on Flat Steel Drum by U. S. Tire Co.

Vanderbilt Issues New Data Sheets

The fourth issue of Technical Data Sheets has just been issued by R. T. Vanderbilt Co., New York City. These sheets, issued periodically, have reached a total in the latest issue of 63 pages, and include some very valuable new information. A short article describes rubber latex, and another deales with the obscuring power of pigments as a measure of their particle size. Properties and technical data on accelerators and ultra accelerators are also added. The pages also contain a number of tables and graphs on the relative thermal conductivities and a conversion table for tensile strength of rubber compounds, formulas for calculation of energy in rubber compound, crude rubber costs, etc.

Shipments to U. S. Territories

Shipments of rubber manufacturers from the United States to territories during the month of January, according to a statement of the Department of Commerce, showed that 19,775 pounds of belting, hose and packing, valued at $12,326 were shipped to Alaska; 35,137 pounds, valued at $12,364 to Hawaii, and 11,643 pounds, valued at $6,310 to Porto Rico. Alaska also took 2,521 pairs of boots and shoes, valued at $6,181; Hawaii 10,033 pairs, valued at $11,969; Porto Rico 45,866 pairs, valued at $31,882. The following table, prepared by the Bureau of Foreign and Domestic Commerce, gives detail statement of total volume of rubber goods shipped from the United States to these territories during the month of January, 1923. The table follows:

	Alaska		*Hawaii*		*Porto Rico*	
	Quantity	*Dollars*	*Quantity*	*Dollars*	*Quantity*	*Dollars*
Boots and Shoes (Pairs)	2,521	6,181	10,033	11,969	45,866	31,882
Druggists rubber sundries (pounds)	404	718	1,240	1,185	1,803	1,531
Automobile tires (Number)	106	1,748	10,116	141,402	4,664	42,312
Other tires (Number)	8	349	3,137	13,278	3,655	5,682
Belting, hose and packing (Pounds)	19,775	12,326	35,137	12,364	11,643	6,310
Other rubber manufacturers (Pounds)	551	253	17,003	22,517	18,950	7,781
Coated and waterproofed goods (Pounds)	1,634	987	3,016	3,030	1,846	1,224

AJAX ANNOUNCES EARNINGS OF $26,536 FOR 1922

For the first time in two years the profit and loss account of the Ajax Rubber Co. showed a profit, the net profit for 1922 being $26,536.67. Net profits from operations in 1922 were $761,316.69, exclusive of interest, taxes and depreciation, which amounted to $734,780.02, leaving a balance of $26,536.67.

Gross sales, less returns and allowances, for year ended December 31, 1922, were $12,189,938.24; cost of sales, including selling and general and administrative expenses were $11,632,650.29. Company's balance sheet shows that accounts and notes receivable total $3,107,956.66, against accounts and accrued liabilities payable of $1,117,600.92. Current assets are $6,052,973.56, while current liabilities are $2,847,800, leaving a net working capital of $1,205,173.56.

Horace de Lisser, chairman of the board of directors, in his remarks to the stockholders says that the outlook for 1923 is most favorable, and that the company's plants at Trenton and Racine are both operating close to capacity. One of the outstanding features that the report shows is that the company closed the year owing no money to banks or brokers.

Ajax Rubber Company, Inc.

PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED DECEMBER 31, 1922

Gross sales, less returns and allowances		$12,189,938.24
Cost of sales, including selling, general and administrative expenses		11,632,650.29
		$557,287.95
ADD—Miscellaneous income		108,536.26
		$665,824.21
DEDUCT:		
Interest on borrowed money, less interest received	$59,839.87	
Interest on first mortgage bonds	217,864.46	
Provision for depreciation	361,583.21	
		639,287.54
Net profit for the year		$26,536.67

Meade Rubber Expands

The increase in the volume of business being done by the Meade Rubber Co., Stoughton, Mass., has resulted in the decision by officials of the organization to build another two story brick plant. The new addition will give the plant a 50 per cent larger capacity than it had in 1916. Work on the new structure has already begun.

Nu-Cord Brings $140,000

The Nu-Cord Rubber company plants at Penn and Greensburg, Pa., were sold at receiver's sale recently to Dr. E. L. Piper, chairman of a stockholder's committee. The consideration was reported as $140,000. Equipment of both factories is included in the sale.

Dr. Piper announced that a new corporation is to be formed and will be known as the Nu-Cord Rubber company of Pennsylvania. A charter will be applied for shortly.

Ceylon-Malaya Exports

The United States Department of Commerce through Consul General Robert P. Skinner, London, announces that the exports of rubber licensed under the respective rubber export restriction laws in Ceylon and Malaya have amounted to the following:

Ceylon: November, 4,088 tons; December, 3,816 tons; January, 4,636 tons. Malaya: first quarter under restriction, 45,500 tons approximately, including 7,000 tons of stocks on the mainland; second quarter: 40,500 tons approximately. These figures do not include the production and stocks in the islands of Penang and Singapore.

Habich and Company Move

Habich & Hammesfahr, rubber brokers, will leave their old quarters at 24 Stone Street on May 1. The company has engaged rooms at 16 Exchange Place, New York City, where they will continue to deal in crude rubber and its allied products.

Summary of Rubber Exports for February, 1923

Compiled by the Department of Commerce

RUBBER BELTING, HOSE, PACKING, AND THREAD.

	Rubber Belting		Rubber Hose		Rubber Packing		Rubber Thread	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Total	217,984	115,279	341,251	118,435	91,631	44,202	68,085	79,422

PNEUMATIC CASINGS AND SOLID TIRES.

	Pneumatic Casings				Solid Tires			
	For automobiles		—Other—		Automobiles		—Other—	
	Number	Dollars	Number	Dollars	Number	Dollars	Pounds	Dolars
Total	131,586	1,532,309	10,251	42,983	7,909	190,101	63,160	15,942

RUBBER FOOTWEAR AND SOLES AND HEELS.

	—Boots—		—Shoes—		Canvas shoes with rubber soles		Rubber soles and heels	
	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pounds	Dollars
Total	27,626	74,252	50,509	38,934	365,126	277,496	116,362	44,085

HARD RUBBER GOODS AND DRUGGISTS' RUBBER SUNDRIES.

	Druggists' Rubber Sundries		Battery jars and Accessories		Other Electrical Supplies		Other hard rubber goods	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
Total	85,584	85,291	26,722	11,164	27,324	6,122	22,490	20,590

COATED OR WATERPROOFED FABRICS.

	Oilcloth (not floors)		Coated or Artificial Leather		Waterproofed Autocloth		Waterproofed Clothing	
	Sq. yards	Dollars	Sq. yards	Dollars	Sq. yards	Dollars	Sq.yards	Dollars
Total	1,016,088	247,342	290,198	139,023	124,339	80,371	68,724	20,590

PNEUMATIC TUBES, REPAIR MATERIAL, MANUFACTURES OF RUBBER NOT ELSEWHERE SPECIFIED

	Pneumatic Tubes				Tire Repair Material		Rubber Manufactures	
	—Automobiles—		—Other—					
	Number	Dollars	Number	Dollars	Pounds	Dollars	Pounds	Dollars
Total	81,277	134,172	3,086	3,082	50,862	18,916	358,702	220,419

Crude Rubber Imports

Importations of Crude Rubber into the United States during March, 1923

(Estimated net weights—long tons.)

PLANTATIONS

FROM	TONS
Batavia	761
Belawan-Deli	2,304
Colombo	4,303
Hamburg	98
Japan and Others	140
Liverpool	255
London	6,809
Malacca	1,526
Penang	1,882
Pt. Swettenham	922
Rotterdam	380
Singapore	12,098
Sourabaya	195
	31,673

AFRICANS

FROM	TONS
Antwerp	76
Bordeaux	178
Hamburg	126
Havre	145
Liverpool	76
London	73
Marseilles	40
Rotterdam	26
Southampton	2
	742

CENTRALS AND GUAYULE

Centrals (Mexico and Central America)	19
Guayule (Mexico)	—
	19

PARAS

Bahia	11
Iquitos	23
Manoas	810
Para	638
	1,482

GUMS, WASTE RUBBER, ETC., IMPORTED FROM VARIOUS SOURCES

	Tons
Waste	863
Balata	124
Miscellaneous Gums	738

Figures compiled and distributed by The Rubber Association of America Inc.

Comparison 1922 - 1923

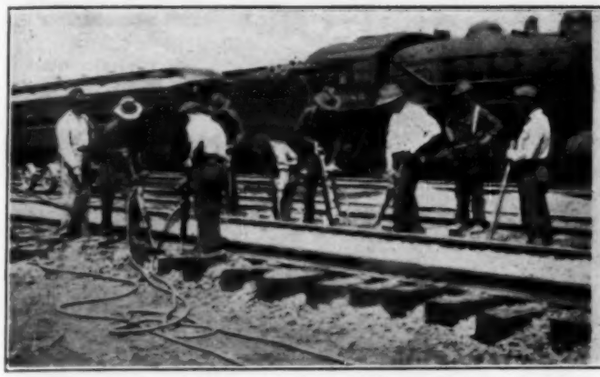
	MAR.-1922	MAR.-1923	Total Importations 3 Months ending, Mar. 31st. 1922	1923
Plantations	27,711	31,673	75,755	82,842
Paras	451	1,482	2,714	4,719
Africans	326	742	788	1,599
Central	3	19	33	173
Guayule	—	—	—	—
Manicoba and) Matto Grosso)	57	—	98	—
	28,702	33,916	79,542	89,333

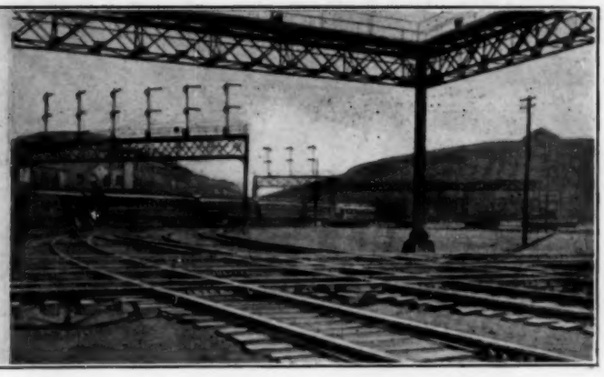
ARRIVALS PLANTATIONS FOR MARCH, 1923, SHOWING PORTS OF ORIGIN AND ARRIVAL

FROM	ARRIVED AT	TONS
Batavia	Los Angeles	11
Batavia	New York	750
Belawan-Deli	New York	2,290
Belawan-Deli	Boston	14
Colombo	Boston	285
Colombo	New York	4,018
Hamburg	New York	98
Japan and Others	New York	108
Liverpool	New York	255
London	Boston	35
London	New York	6,774
Malacca	Boston	29
Malacca	Baltimore	402
Malacca	New York	1,095
Penang	San Francisco	38
Penang	Boston	68
Penang	New York	1,776
Port Swettenham	New York	874
Port Swettenham	Baltimore	48
Rotterdam	New York	380
Singapore	Baltimore	20
Singapore	Boston	562
Singapore	New York	11,051
Singapore	San Francisco	350
Singapore	Seattle	215
Sourabaya	New York	195
Japan and Others	Seattle	32
		31,673

ARRIVALS OF PLANTATIONS BY PORTS

Atlantic Ports		
New York	29,664	
Baltimore	470	
Boston	993	
		31,127
Pacific Ports		
Seattle	247	
San Francisco	288	
Los.Angeles	11	
		546
		31,673





Railroads and Mechanical Rubber Goods

Value of Rubber Hose Used By Railroads Will Show Big Increase in 1923—Roads to Spend $1,540,000,000

The railroads are preparing for an exceptional volume of business this year. As a result they have gone into the equipment market, and have placed the largest orders in the railway history of this country. As the rubber manufacturers supply the railroads with a number of rubber products, such as air and steam hose, gaskets, tape, belting, packings, et cetera, they are preparing to obtain their share of this new business. This article brings out the relationship between the products of rubber companies and the railroads, and gives some interesting data on the probable business which will be done with the railroads by manufacturers of mechanical rubber goods in 1923.

THE year 1923 is expected to be a most prosperous year for the manufacturers of air brake hose and other rubber articles demanded by railroads. The average increase this year in purchases should be about 225 per cent over 1920, which means that the railroads shall consume $30,000,000 of rubberized hose goods in 1923. This prediction, made to a representative of THE RUBBER AGE, comes directly after the announcement from the American Railway Association, stating that carriers had authorized an expenditure of $1,540,000,000 for new equipment and repairs.

In normal years the railroads of this country use between $12,000,000 and $15,000,000 worth of rubber mechanical goods. The average consumption of air hose for freight cars ranges between 1,000,000 and 1,600,000 pieces. This figure is based upon the fact that there are about 2,500,000 freight cars in service, the demand for air hose being approximately on a 50 per cent renewal basis.

Between January 1, 1922 and March 15, 1923 the carriers purchased 233,616 new freight cars. Of these 117,280 have been delivered, and are now being used. This means that there are about 2,617,280 freight cars available for service now. By the end of the current year there will be 2,723,616 freight cars available. At the same time the railroads have ordered 4,219 locomotives, of which 2,106 have already been delivered. Add to that the fact that the railroads have also ordered 5,000 passenger coaches, and the boom year for the manufacturers of air brake hose and other kinds of hose would seem to be in full swing.

In 1920 the carriers purchased about $10,000,000 of rubber hose. In 1921 the amount increased to about $15,000,000, and in 1922 the figure totaled $22,000,000. In 1923, it is predicted by rubber manufacturers, the consumption of all hose will touch the $30,000,000 mark, and all mechanical rubber goods used by railroads may reach close to $100,000,000.

In 1921 the situation was far from favorable. Repair and equipment shops were closed down for four or five months. The market was so glutted with mechanical rubber goods that the carriers could have had delivery within 24 hours. So the roads followed a hand to mouth policy. As a matter of record demands for mechanical rubber goods, as used by the railroads, fell off from 40 to 60 per cent during 1921.

The country's business in 1921 was running on low gear, the opposite being true today. Compared with 1920 freight car loadings were off 150,000 cars a week. Cars were permitted to run without having the necessary repairs made. About 13.8 per cent of the cars owned by the Northern Pacific were in bad order. Approximately 19 per cent of the locomotives on the railroads in 1921 were in need of repairs requiring more than 24 hours, ten per cent being regarded as the maximum in normal times.

Consequently the railroads are paying Paul for robbing Peter. In other words their present demand for mechanical rubber goods is the result of increased volume of business, the vital need for new equipment and the necessity of keeping their present rolling stock in good order.

Hose, the principal rubber item that the railroads purchase, is classified as follows: Airbrake hose for freight cars, airbrake hose for passenger cars, air signal hose (slightly smaller), steam hose (high quality), tank hose which connects the locomotive with the tender, air brake hose, and other varieties as acetylene and oxygen hose, sand blast, car heating, squirt, washout, water, fire and vacuum hose. Among other rubber articles used are packing, belting, tape, splicing compounds, flooring, matting, plumbers' specialities, molded goods, valves, et cetera.

The Master Car Builders have set standard requirements for all hose. For example, air signal hose is 1⅛ inches in diameter by 22 inches in length; steam hose is 1⅝ inches in

diameter by 22 inches in length; air brake hose is 1⅜ inches in diameter by 22 inches in length. In addition to the above classification of hose, used by railroads, there is a large demand for pneumatic water hose, used in repair shops.

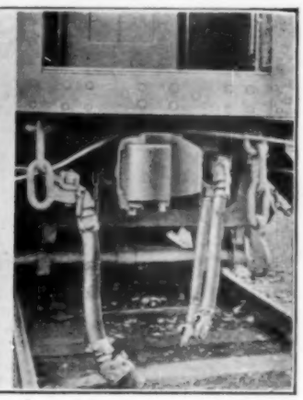
At present there are about 60,000 passenger coaches in service. Fully 5,000 more cars will be added to that figure by the end of the year. Each passenger coach requires two sections, or 44 inches, of air brake hose, as well as two sections of air signal hose. On the other hand each freight car requires two sections of air brake hose. Hose is also needed to couple the locomotive with the coaches or freight cars, being used as steam hose, air brake hose, air hose, air signal hose and steam hose. Rubber gaskets are also used extensively.

Besides the railroads are heavy consumers of rubber tape. Ordinarily this tape is used for splicing purposes. Just to what extent the railroads demand for the tape is, manufacturers are not prepared to say. They admit, however, that they do a fairly good volume of business with the carriers.

In Europe the coaches are set upon what is called "cushion bodies." That is there is a rubber buffer between the bodies and the truck. That device was discarded by American coach builders many years ago.

Manufacturers of air brake hose point out that the safety of railroad travel is greatly insured by the use of air brake hose. That article requires the best grade of cotton as well as rubber. In substance the railroads spend 35 cents out of every dollar taken in for equipment and accessories. The rubber companies are, therefore, expecting to share part of that 35 cents with the other manufacturers of the country.

RUBBER PACKING IS USED FOR AIR PUMPS



AIR BRAKE AND CAR HEATING HOSE

The Balata Industry in Peru

By W. E. Dunn, Acting Commercial Attache

IN consequence of the prolonged depression and virtual paralysis of the rubber industry in the Amazon region of Peru, efforts have been made to find additional forest products. Attention was drawn to balata, as a tree producing that commodity grew in the Amazon region of Brazil, and a search was made in Peruvian territory for the same or a similar tree. This quest was successful, it being learned that the quinilla tree, growing along the upper Amazon and its tributaries, produced the same substance.

Experiments were made with the latex of the quinilla tree early in 1920. During 1920, a total of 699,000 kilograms were exported. In 1921 shipments were interrupted by a local insurrection of Iquitos. Only 151,567 kilograms were exported during that year. In 1922 exploitation was actively resumed, the volume of exports reaching approximately 1,000,000 kilograms. Further expansion in the industry will probably take place.

Description of Trees

Peruvian balata is derived from the tree popularly known as the "quinilla," of which there are several species. These trees are of large diameter and grow to a height of about 60 feet, usually being found, widely scattered, on firm, high land some distance from the rivers. One species has large leaves, with dark yellow bark, and bears a small pulp-like fruit of pleasant flavor. This tree is sometimes called "sacha vaca quinilla," because the "sacha vaca" (tapir) is said to feed on the fruit and leaves. Another species, known merely as "quinilla," has smaller leaves, and gives a similar yellowish fruit. In the Putumayo River region the Indians call the balata tree "bafacoma," which yields a white balata of superior quality.

Areas Exploited

When exploitation began in 1920, the work was confined to the Rio Pintayacu, a tributary of the Rio Nanay, which in turn flows into the Amazon near Iquitos. Later on the work was extended to the branches of the Rio Napa. Then as the demand increased exploitation spread to the following areas: on the Ampi-yacu, Itaya, Tamshi-yacu, and Yarapa rivers, tributaries of the Amazon; in the forested areas of the Cachi-yacu and the Paranapura, which flows into the Rio Huallaga; in the region of the Apaga, Pastaza, Morona, and Tigre Rivers, affluents of the Marañon, where the work is of importance; and finally on various tributaries of the Ucayali, including the Tapiche, Puhinagüa, Maquia, Catalina and Cashiboya Rivers. The industry in this last-named region is as yet of little importance. Balata is also found in the Madre de Dios region in Southern Peru, but little exploitation has taken place up to the present.

Methods of Extraction and Preparation

As a rule, the exploitation of the balata trees in Peru is carried on in a wasteful manner. After the tree is located, the branches are first cut off and the sap extracted. The trunk is then felled. The latex is received in sacks or enamelled utensils, and after being strained and boiled and coagulated, finally being molded into blocks. The above wasteful methods are justified by the workmen on the grounds that the latex is so thick that it will not flow out of the ordinary incision. In the Putumayo River region more scientific methods are in vogue, and the tree is not destroyed. While the production is less, a permanent source of revenue is available. Government cooperation is urgently required, if the extermination of the balata trees is to be avoided. Experts are also needed to study the industry, and to instruct the workmen in the best methods of extracion and preparation.

Exports

Detailed statistics of exports of balata showing countries of destination are available for the months of October, November, and December, 1922 only, and are as follows:

WHITE BALATA	OCTOBER	NOVEMBER	DECEMBER	TOTAL
	kilos	kilos	kilos	kilos
Great Britain	56,267	63,395	121,809	241,471
United States	17,160	22,929	....	40,089
Germany	3,306	5,065	....	8,371
France	10,717	...	....	10,717
Brazil	5,483	720	2,020	8,223
Total	92,933	92,109	123,829	308,871
PINK BALATA (rosada)				
Great Britain	None	491	19,067	19,558
United States	None	3,371	....	3,371
Total		3,862	19,067	22,929

The value of the balata exported from Iquitos in 1922 was officially placed at approximately Lp. 75,000. Prices now being offered from the United States range from 75 to 80 cents, and from Great Britain from 3½ to 5 shillings per pound.

Some Problems with Rubber Soles

By Morris Omansky

Consulting Chemist and Rubber Technologist

This paper deals primarily with the mechanical and physical properties of the rubber sole. Some of the principal points brought out are that the rubber compound must be hard in order to be stitched. In the rubber shoe the stitching seams and open spaces are plugged. It is further pointed out that leather is more porous than rubber, but that leather is a poorer conductor of heat.

It is the stitching holes that give ventilation to the leather shoe, whereas in the rubber article there is little or no chance to secure ventilation through the motion of the foot which in leather shoes acts like a pump, drawing in fresh air and expelling the moist air through the sides of the shoe. Consequently, some people speak of the "burning" or "drawing" effect of the rubber sole.

THE rubber sole, when in use, is subjected to mechanical actions which differ to a considerable degree from those which act upon the heel. Not only does the former offer a much larger wearing surface, but the forces themselves are not so great. The bulk of the weight of the body falls upon the heels which also receive most of the pounding and abrasive effects of walking. The sole receives more of a rolling motion somewhat similar to a partial revolution of a tire. There is, however, this essential difference:—with most people the step is completed with a thrust from the toes which not only increases the abrasive action at this point of the sole on a comparatively small area, but also produces the greatest tensile strain at a spot which has been considerably weakened by stitching.

Due to the reckless competition for price instead of quality which has already been touched upon in a previous article, the rubber sole business has not yet recovered from the severe set back which it received some years ago. Indeed, the only stimulent it has received in recent years are the black soles and taps now on the market which consist essentially of crude rubber compounded with large volumes of gas black. When properly cured these products give excellent service, and can be sold at reasonable prices because of the abnormally low prices of rubber. It will be interesting to watch both the quality and prices of these products as the price of rubber continues to rise.

Essential Properties

It would appear from the above that rubber compounded to its maximum toughness as in a pneumatic tire tread should prove to be the best suited. This would call for a stock much softer than the average heel stock. Such a stock would be satisfactory in a limited number of cases, as for canvass shoes as well as for rubbers and rubber boots. But such a compound would be very unsatisfactory for the leather shoe factory where it is to be worked with leather working machinery as a substitute for the leather sole.

Most soles are attached to the shoe by sewing. A soft rubber sole is wholly unsuited for stitching by machinery for the high tension employed would in a short space of time cut through a soft compound. Then again, a soft sole interferes with the stitching operation itself. At this stage the combined action of the tension, pressure employed, and motion will cause a soft product to buckle and warp, making stitching by machinery very difficult if not impossible. Furthermore, the form of the shoe itself depends to a varying extent upon the rigidity of the outer sole. Therefore all shoes which come with a full thickness of rubber, or fibre, sole must use a product which approximates leather in stiffness.

Not only do the manufacturing conditions of the shoe industry demand a hard product, but the conditions of use also require it. A soft stock will expand in use because of a repeated permanent elongation effect and cause the edges to bulge out over the sides of the shoe, giving a most awkward appearance. This same expansion will also cause the rubber to separate from the ball of the foot in a manner which will form a large blister. This not only renders walking uncomfortable at its best, but usually tears in a very short space of time.

Just as in the case of the rubber heel, the trimming or finishing of the rubber sole also necessitates a hard product. As a matter of fact, some manufacturers will concede to use abrasive wheels of emery, carborundum, etc., for the heel, but they will not grant this concession for the rubber sole. We can appreciate their position when we realize that the manufacturer must pay a rental on his trimming machines and that it is, therefore, to his advantage to use his machines to their maximum capacity. In addition, the steel trimming wheel does its work more rapidly which is an important item, since this operation is usually paid for on a piece work basis. There is also the added advantage that a lot of rubber soled shoes can be trimmed up immediately after a lot of leather soled shoes without any time being wasted to make adjustments, because of the differences in the nature of the substances. The rubber sole must act like a leather substitute.

A hard sole will distribute the mechanical pressure applied to a small local spot over a larger area reducing its intensity; the soft sole cannot do this. Consequently, when walking over a rough surface, or stepping upon a pebble, the local pressure is felt by the foot and becomes a source of great inconvenience and often of pain.

A factor which has received too little attention is that of the coefficient of friction. The practical significance of this becomes apparent at its mere mention, and yet there seems to have been little work done in this direction. Some attempt to treat such problems from a metaphysical point of view. It is possible to argue that a soft stock should show the higher coefficient but experiment shows that just the opposite is true. With compounds containing approximately the same per centages of rubber by volume, the coefficient of friction is roughly proportional to the hardness. A good sole should show a coefficient of about 0.75.

When the fibre sole business was in its booming period, considerable attention was paid to the specific gravity of the stock. The disgraceful decrease in quality of the following years was accompanied by a rising specific gravity. Since the excessive weight of rubber soles over leather is a frequent objection, it would do much to reestablish the popularity of this product to return to the lighter weight grades.

Complaints

Contrary to my experience with rubber heels, I find that practically all complaints against rubber soles are legitimate. The nature of these has been suggested in the preceding paragraphs, and others will be dealt with below. Most of these complaints arise from an improper compound or cure. The flood of poor soles has placed us on the defensive, and

we must be careful and diplomatic in handling complaints even when there appears to be sufficient grounds for suspicion. I am sorry to say that the manufacturers have created conditions whereby they are not entitled to the benefit of the doubt.

There is, however, a general objection to the rubber sole as a whole, which warrants discussion and further investigation. It is complained by many that rubber soles draw or burn the feet. This may be so; it is a fact that the wearing of rubbers or rubber boots indoors produces unpleasant results. But I suspect that with the rubber sole alone many of these complaints are purely psychological in character, and are suggested by the similarity in the composition of these articles of footwear. This objection is put in scientific form by the statement that rubber is dense whereas leather is porous and therefore allows the ventilation of the foot.

It is true that the ordinary rubber product is more impervious to moisture than leather. As a practical matter how much more moisture can escape through the thick leather sole than through the rubber? I am inclined to believe that the quantity in either case is imaginary. I also doubt whether more escapes through the thinner uppers. In this connection let us recall that leather was used for making fire hose prior to the advent of the modern rubber lined cotton jacketed article, without any noticeable leakage other than visible openings. If this argument is objected to on the grounds that the phenomena of surface tension would prevent the passage of water in the liquid state, but that the porosity would permit the diffusion of moisture laden air, I must again question its practical significance. The average canvass tent is made of a material more porous than leather, yet the occupation of such a tent on a warm day soon becomes unbearable unless ventilation is secured by opening flaps or even lifting the sides. In view of this and similar facts together with the inconsistencies described below, I am very skeptical as to the practical value which the porosity of the leather contributes to the ventilation of the shoe.

My own view is that most of the ventilation is secured through stitching holes, seams, and open spaces. Incidentally, it is through these openings that water enters in wet weather. In fact, the plugging up of such openings is frequently resorted to as a means of rendering the shoe comparatively waterproof. Considerable ventilation is also secured through the motion of the foot in the shoe which thus acts as a pump, drawing in fresh air and expelling the moist air through the sides of the shoe. One point I will readily concede; the leather sole is a poorer conductor of heat than the usual rubber sole. This can account for a "burning" action on hot sidewalks and pavements in summer.

There are also certain inconsistencies which support the contention that this objection to the rubber sole is chiefly psychological. People who claim that they cannot tolerate the rubber sole report no inconvenience from the identical product when they are induced to try it as a fibre and not a rubber sole. Again, we hear no such complaints from shoes which contain rubberized fabrics on the inside, or from satin covered shoes which have the cloth fastened to the surface by a waterproof coating of rubber. The most striking inconsistency is in those shoes which contain Gem Duck. This duck, which is a partial substitute for a full thickness leather insole, is coated with a layer of Gutta Siak which thoroughly waterproofs it against moist air as well as water. Since this coated duck comes in between the insole and outsole, it becomes evident that it is impossible for the outsole to function in any capacity as a ventilator. Although most shoes built on the Goodyear welt system contain this coated duck, no "drawing" action due to lack of ventilation is reported. Some years ago the writer was working with some asphaltic mixtures to be used in the shoe industry. He was warned not to include even minute amounts of rubber as an ingredient to reduce brittleness, because the rubber would prevent the proper ventilation of the shoe. Now if there is anything which is more waterproof than rubber it is asphalt. If rubber has a specific effect on the foot I am willing to regard proof of this in a sympathetic light. Thus far the only objections I can find to the use of rubber footwear is that it may conduct heat better than leather, and that in certain forms as in rubbers, it closes the channels through which a change of air is effected.

There must be a certain minimum of quality if the sole is to stand up at all. Then since all soles require a hardness above that of the hardest good heel, too cheap a compound is bound to crack across the ball of the foot when worn. In addition to a hardness which would give a high grade sole a coefficient of friction of 0.75 the tensile strength should be at least one thousand pounds per square inch in the weakest direction. Then it must also meet some tests against shortness or brittleness as described further below.

Stiffness can be obtained in three ways;- By the use of excessive amounts of sulphur, the use of fibre, and the use of pigments. The use of large amounts of sulphur results in poorly aging products that are certain to become brittle. Furthermore, such soles are apt to bloom out after a long period after they have been considered safely nonblooming. Because of the hardness of sole stocks, an excess of free sulphur comes to the surface very slowly. I have seen soles which for a period of nine months after curing were apparently non-blooming, develop a bloom by the end of the year which rendered them unmarketable.

Reinforcing Pigments Used to Obtain Hardness

As in the case with rubber heels, the best way to obtain the required hardness is by the judicious use of reinforcing pigments. Indeed, sufficient amounts can be incorporated to make the use of fibrous ingredients unnecessary. Some of the best soles and rubber taps on the market are free from fibre of any kind. This type of compound is to be recommended, however, only with the very best grades. To accomplish a similar effect in lower priced goods the use of fibre of some kind is necessary. Fine ground cotton is popularly employed for this purpose and a small amount incorporated as a part of the compound has a big stiffening effect.

The generally accepted notion is that this fibre increases the wear resisting properties of the sole. On the contrary, it very materially reduces the wear resisting properties and tensile strength. Fibre is, however, very effective in increasing the resistance against the tendency of the stitches to cut through the stock. Its wear resisting properties are nil.

It is well known to those who have had experience with fabrics that increased strength comes with increased length of fibre. In the rubber sole this has been reduced by grinding to almost microscopic dimensions. Then, a long staple cotton must be in an organized state, which is obtained by twisting and weaving. In the fibre sole the cotton is present in a most unorganized state as a highly diluted felt. Any compound which contains fibre will show a higher strength when the fibre is eliminated. Even in its strongest form as a duck or cord fabric cotton is possessed of little wear resisting qualities as compared to rubber. Thus we recognize that as soon as the tread of our tires are worn off that the fabric base underneath will wear away in no time even when fully protected against moisture. If cotton was an aid to wear then we should expect the best wearing sole would consist of a properly shaped piece of canvass-rubber belt. Instead, we know that as soon as the rubber surface of a belt wears off that the balance of the belt will not last long.

I have seen expensive sole compounds fail to give as satisfactory service as cheaper products because of their excessive fibre content. The most conspicuous of such failures was a compound which contained about twenty-six per cent of cotton and about sixty per cent of smoked sheets by weight, the balance consisting of curing and coloring ingredients. The resulting sole felt and looked superior to anything seen in that line, but an actual wearing test showed it to be no better than a medium grade sole.

On the other hand I do not wish to be understood as opposed to the use of fibre. Most compounds now in use must have it. My position is best stated as follows:—The best results will be obtained in a sole compound by using the least amount of fibre necessary to obtain the desired hardness and rigidity.

This degree of hardness necessarily requires a great sacrifice of the elastic and strength elements of rubber. Nevertheless, the destructive forces acting on a sole are less intense than on the heel. It is not difficult to produce moderately priced compounds which when properly cured will outwear the best grades of sole leather. In other words, a satisfactory rubber sole is almost the reverse of the best rubber shock absorber as described by Gurney.

Direction of the Grain

Most manufacturers cut the stock so that the grain runs from the sole to the heel. This makes the sole stiffer in the direction of heel to toe and enables the salesman to demonstrate the stiffness of the sole by holding it at one end. This is merely a "talking point", and stiffness depends upon other factors, such as, size, thickness, etc. It is a poor substitute for the accurate hardness of the test.

There are more serious considerations which should govern the direction of the grain. It will be found that the sole has a greater stretch across the grain than with it. Advantage should be taken of this fact; this extra yield should be used to offset the tendancy of the sole to crack because of its brittleness, and it can also be used to reduce the too common tendency of the stock to break away from the stitches at the toe. Again, by controlling the grain so that the stiffest direction of the sole is across the foot. There will be less trouble with the sole curling of the edges over the sides of the shoe. It is an error to disregard these important factors for a mere "talking point." The improvement in the life of the sole is more valuable as a business getter.

Testing

What I said in this respect about heels applies with equal force to soles. The best test is the actual wearing test when carefully conducted. Here again, however, the usual physical tests combined with the determinations of hardness and elasticity will enable the experienced technoligist to make safe predictions as to the probable wear of a sole. There are, in addition, some tests which are applied to judge the brittleness and the tendency of the stitches to cut through the sole.

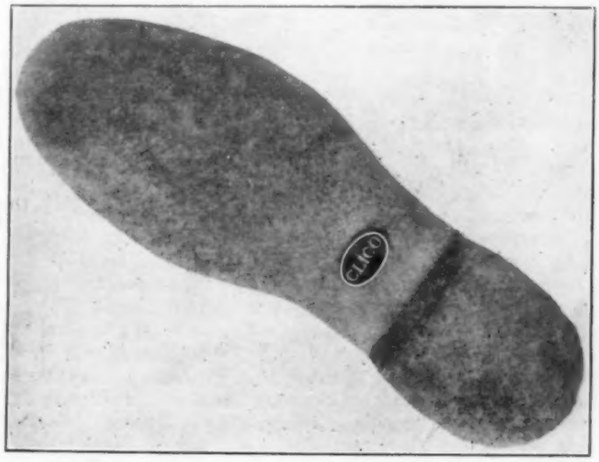
To test brittleness and liability to cracking, two knife cuts are made on the surface of the sole. One is parallel with the general length of the sole and the other is at right angles to it. Both cuts intersect each other, and are about one-thirty second of an inch deep. The sole is then bent back on the uncut side so as to produce a stretch on the cut. There should be no sign of the stock breaking under this tension, and the depth of the cut should be in no way increased by this treatment. This proceedure is repeated with the other cut. To determine the resistance against the tendency to break away from the stitching, the small blade of a pocket knife is forced through the sole with the edge of the blade facing the nearer edge of the sole and about a quarter of an inch away from it. The blade is withdrawn from the puncture thus made and the sole is bent back upon itself using this small slit as an axis. The cut should not extend itself in any direction.

The Pale Crepe Sole

In spite of all our disastrous experiences with soles, we are now engaged in a new folly. I refer to the new fad of unvulcanized pale crepe soles. It is remarkably peculiar how we hesitate to make necessary improvements in the quality of soles, but plunge into a fad. The experience of England is no criterion, if we are to judge by the trashy products which are acceptable to that country as rubber heels. Let us remember that the prime object of this fad is to increase the consumption of plantation rubber. It is not a result of the many years of painful experience with rubber soles. If even undervulcanized soles will wear poorly, what are we to expect from uncured goods? Such soles may give a fair degree of service on soft turfed golf links, where occasional use over a long time will give the impression of considerable mileage. But these soles are now being adopted for street wear. They are bound to prove unsatisfactory, and will do the industry more harm than good.

Is the Crepe Sole Just a Fad?

Writer of Above Article Refers to Crepe Soles as a "New Folly." Do Experiences of American and English Manufacturers Justify Such a Statement?



IN the above article on rubber soles, the author, a consulting rubber chemist and technologist with valuable experience in the field of soles and heels, states that we (speaking of American rubber sole manufacturers) are now engaged in a new folly—that of unvulcanized pale crepe soles. He states that it is just a fad which, despite the apparent success it has had on the Continent, will in the end do more harm than good to the rubber industry in this country.

He speaks in harsh terms of the experience in England stating that it "is no criterion, if we are to judge by the trashy products which are acceptable to that country as rubber heels."

Is the prime object of this "fad" only to increase the consumption of plantation rubber?

Have experience and experiment proven that crepe soles give satisfactory service only on soft tufted golf links?

What have our readers to say on this subject? We shall be glad to give space to a discussion of this subject so that the experiences and ideas of those manufacturers, both here and abroad, who are marketing crepe soles may be given the proper publicity.

In the meantime, we give here a brief description of a representative successful American crepe sole and an abstract of a report by an English manufacturer.

The accompanying cut illustrates the "Clico" crepe sole made by the Clifford Co., Boston, Mass. This concern also makes Ace Rubber Heels and Clico XXX Adhesive. The sole illustrated, is made of pure ceylon crepe with a fine, firm, close grain which permits perfect cementing and stitching according to the manufacturer. It will not "squash out" or curl around the welt and is 60 per cent lighter than common rubber soles and 30 per cent lighter than leather. It is not thick, bulky or clumsy looking and will not come off the shoe when worn. It is resilient and long wearing.

The sole is made in 1/8 and 3/8 inch thicknesses, in single and double units with the wedge heel separate. This concern has experienced little difficulty in interesting dealers and users in wearing crepe soles and is advocating them for golf, tennis, basket ball, gymnasium and outdoor wear.

In England where the use of crepe soles is much more common we find that business in this new "fad" is good and

that crepe soles are no longer looked upon as experiments for they have been adopted generally for sport and general footwear use.

Messrs. Macadam, Reith & Co., London, have recently made some interesting comments on the adoption of crepe soles. They have found that despite appearance and color, the demand for these soles has increased with a shortage in the 1/8 inch size already apparent. Manufacturing obstacles are rapidly being overcome. This concern predicts that "crepe rubber for soles has come to stay", and urges whatever measures are necessary to adequately meet the demand. The report is as follows:

Principal Drawback is Appearance and Color

"Perhaps the principal drawback is the incongruity of its appearance and color on walking boots and shoes as exhibited by many retailers; a difficulty which can be overcome by the skilful use of black or brown stains on the edges of the soles, leaving the sole surface to show the natural, pale-primrose, opaque, grisly features which guarantee the genuine article to the consumer. For country wear and long distance walking its comfort and resiliency are points in its favor which need only be experienced to ensure general adoption.

"For athletic wear its success has achieved widespread popularity, which has brought about permanent and steadily increasing consumption in sporting circles. For this reason demand is bound to be, to a certain extent, seasonal. The spring and early summer of 1922 produced widespread interest and inquiry, for which the plantations were then unprepared. The autumn brought to light a revival in connection with golf shoes, and urgent measures to meet the excellent prospects of the 1923 spring trade have been adopted by some plantations. The industry is therefore established on a more business-like footing than a year ago, which has been fully justified by the season opening with inquiries from all the manufacturing centers.

"The inability of producing companies to meet last season's demand in Great Britain alone led to hasty out-turn of sole rubber later in the year, which caused much disappointment among shoe manufacturers on account of its careless preparation, and the lack of consideration shown toward their requirements. Much of it was soft and spongy; of bad color; uneven in length and width of sheet; and varying in substance in individual packages as much as 1/4 in. In many instances even the sheets varied in thickness from end to end. Producers were a little slow to realize the importance of exactness, but in this respect a slight variation will have to be acceptable to shoe manufacturers, as it is impossible to produce mathematical exactness with a raw material like rubber. At the same time it is due to the producers to give their best attention to this point, and the satisfactory consignments now arriving from some plantations are proof that the boot trade may expect very much more consideration than has been shown in many instances.

"The existence of narrow mills on the large majority of Eastern rubber plantations accounts for the large proportion of consignments which come to hand in sheets 9 in. wide, but it is a satisfactory feature that some companies are installing the larger size to produce sheets 13 in. in width. This is claimed by the trade to be the economic width to cut from, and it would be well for the industry to standardize to this size.

"Sole rubber of the smooth variety in sheets 36 in. by 13 in. by 1/4 in. and 3/8 in. is arriving in fairly regular consignments, and will probably meet the anticipated demands of the home market for the first quarter of the year. Demand for abroad, however, is still an uncertain factor. Plantations have standardized the three substances 1/8 in., 1/4 in., and 3/8 in., but recent unexpected developments in the use of 1/8 in. substance have not yet had time to meet with response in increased production. The result will be a temporary shortage in sheets of this thickness which the near future may be confidently expected to rectify. There has been great improvement in evenness of substances, which, from the most reliable sources, are now slightly full, but even. Intermediate substances are not being made, except on definite orders for quantity, as plantations find much more convenience, and more satisfactory results, in keeping to the three standard thicknesses.

"The corrugated variety, which is in demand for golf shoes, should be in 1/4 in. and 3/8 in. substances, in sheets 13 in. wide and 39 in. in length. The soles in this instance are cut lengthwise out of the sheet in order to obtain the corrugation across the soles. The corrugation should be well defined.

"There are considerable stocks of sheets 26 in. by 9 in., some of which is of excellent quality. There have been many consignments, however, which are inferior, and it is to be regretted that in some instances these have come into the hands of purchasers ignorant of their defects. Some damage to the reputation of crepe sole rubber has originated from this fact, but extended use is rapidly teaching discrimination.

Crepe Rubber for Soles Has Come to Stay

"In conclusion, writing with experience of the preparation of rubber on estates, and the machinery employed, we would remind producers that crepe rubber for soles has come to stay, and that the question of adequately meeting the demand is one that deserves their serious attention.

"The cost of the actual preparation of the desired article exceeds that of ordinary market crepe, and in addition there is undoubtedly an extra heavy strain on the present type of machinery employed.

"It is possible that small factories, unless they devoted their whole attention to sole rubber, could not be expected to install the necessary plant, but owners of factories dealing with large crops might consider the advisability of adding to their plant one or more suitable machines so that they can prepare sole rubber at an economical cost."

Viscosity of Crude Rubber and Aging of Vulcanized Rubber

An interesting research on the viscosity of crude rubber and the aging of vulcanized rubber is described in the Italian journal, *Giornale Chimica Industr. Applicatta,* volume 4, pages 200 to 203. The softening of rubber (conversion into a pitchy consistency) is assigned by several authors to a phenomenon of oxidation and by others to a physical disintegration or a chemical decomposition (depolymerization). Van Rossem reconciles both opinions. According to him, the oxidation action is a secondary phenomenon, the depolymerization being the principal cause of the rubber assuming a pitchy character. The oxygen acts merely as a catalytic agent. The author believes that there are two phenomena in the action, that is oxidation and depolymerization, but he believes that oxidation is the primary cause of the softening of the rubber. There is great doubt that oxygen acts as a catalytic agent for nowhere in chemical processes has it a similar action. As far as the present state of our knowledge is concerned, in the autooxidation of rubber, either crude or vulcanized, an ozonide of rubber is formed. It appears that the oxidation of crude or vulcanized rubber takes place in two distinct manners, giving rise to two different series of products.

In the first place under the action of oxygen, a resin is obtained which is soluble in alcohol and acetone but insoluble in water. In the second place under the action of oxygen mixed with ozone, there is first obtained an ozonide which water decomposes to form an aldehyde or levulinic acid, soluble in water.

Direct sunlight favors the second process. Certain oxides such as manganese dioxide and copper oxide have a similar action.

Labor Handicaps Philippine Rubber Culture

Change in Immigration Law Necessary Before Commercial Rubber Culture Can Be Success

By Frank A. Seiberling

President, Seiberling Rubber Co., Akron, Ohio

Crude rubber cannot be produced economically in the Philippines until the insular Immigration Laws are changed, according to Mr. Seiberling, who in 1913, made an intensive test of the Philippine rubber possibilities and is considered an authority in the United States on the subject.

Mr. Seiberling has offered to place all facts obtained by him in the hands of Secretary of Commerce Hoover to assist the Government in its survey because he believes the Government may be able to surmount the difficulties which in the past have handicapped American enterprises in the Philippines.

BY soil and by climate the Philippine Islands are suitable for rubber growing. Some rubber is now being grown on the islands on a small scale. The United States Statutes, however, which prohibit the importation of foreign contract labor to any of our insular possessions, make the development of crude rubber plantations on a successful commercial scale, at this time, impossible.

In 1913, foreseeing the possibility of a heavy British crude rubber tax at some future time, we made an extensive test on a 10,000 acre tract at Cotabato, in the southern part of Minandoa, Philippine Islands,—relying upon the native Moro laborer, who by physique should be suitable as Chinese, Malay or Javanese coolie labor.

The results, however, were disappointing. Filipine labor, we became convinced, is not practicable for any form of agriculture on a commercial scale. The Philippines, except in Luzon, which is not suitable for large scale agriculture, offer few possibilities, as a source of dependable labor.

Our own experience has been that Chinese coolie labor is the most desirable for the heavy work of clearing the jungle, and of planting—while afterwards, the lighter coolie class, the Javanese, Malays, etc., are quite satisfactory for tapping and cultivating. The Chinese, Javanese and Malay coolies are good workers, and dependable. The native Filipinos cannot compete with them.

After experimenting unsuccessfully for several years with Filipino labor, and faced with the Government's prohibition against the importation of foreign coolie labor into the Islands,—we found it necessary eventually, to suffer a heavy financial loss, to dispose of our Cotabato plantation and abandon this effort to grow crude rubber commercially in the Philippines.

More favorable labor conditions in Sumatra, a Dutch possession, made it impracticable for us to do other than establish our rubber plantation under a foreign flag.

There is no question that the Philippines could be developed into an economical source of supply for crude rubber, if the restriction against the importation of foreign contract labor were suspended for a period of, say, ten years, until the heavy work of initial clearing and planting were taken care of,—by which time, perhaps, Filipino labor could be trained to do acceptably the lighter work of the established plantation.

Such a suspension of the present immigration restriction, would greatly assist agricultural development along many lines, in the Philippines. At present, not only commercial rubber growing, but all large scale agriculture is faced by the same problem of labor, in considering the Philippines as a source of raw material.

The occasional typhoon, also, is an investment hazard, which Philippine agriculture faces. The investor, too, cannot disregard the eventuality of the restoration of the Philippines to the Filipinos. The American producer would then merely have the Republic of the Philippines, as a vendor,—rather than the Dutch or British, as at present.

Annually, the United States purchases and manufactures into finished product,—about 70 per cent of the world's supply of crude rubber. Yet, not more than 1 per cent of the world's supply of crude rubber is produced under the United States flag. Great Britain produces about 70 per cent of the world's crude rubber supply—and the Dutch possessions the larger part of the balance.

About 80 per cent of the importation of crude rubber into this country, is used in the manufacture of tires. During 1923, 45,000,000 tires will be required to satisfy the needs of American motor cars. The state of New York alone, has more motor cars than all of Europe, including the British Isles.

During the past five months, the price of crude rubber has advanced 15 per cent, due directly to artificial tax pressure from the British Government, which has been actuated by a desire to assist British plantation owners equalize heavy losses sustained in 1921 and 1922. A special British tax commission was appointed about six months ago, to serve as mediator between the rubber producers and the large buyers of crude rubber, in the proper administration of this tax program.

Naturally, British growers, while desiring to make a satisfactory profit on their investment, are not blind to the fact that undue inflation of price will force their huge American customer to establish a source of supply elsewhere. At the present time, the cost of producing crude rubber is about twenty-two cents a pound, whereas the selling price is thirty-three cents. Thirty cents perhaps would be a fair price.

If the United States is to compete with Great Britain in the production of crude rubber, it is obvious that the United States must consider seriously the adoption of the same labor policies which are making large scale rubber production possible and profitable in the British and Dutch possessions. It would seem that any survey of the project which does not consider this one basic fact, will be futile. The final solution must hinge eventually on this one point.

[*An illuminating article on Labor Conditions in the Philippines by Vincente Villamin appeared in* THE RUBBER AGE, *Apr. 10, 1923, Pages 14-16. This article, by a native, should be thoroughly read and digested in connection with Mr. Seiberling's remarks as set forth on this page.* EDITOR.]

ABSTRACTS

Technical — General — Commercial

Use of Talc in the Rubber Industry

THE following information, which will be of service to rubber manufacturers who use talc in the compounding of rubber, was recently published in *Gummi Zeitung*.

Talc is a mineral which occurs widely distributed in nature. It has an unctuous touch and a hardness of one, meaning that it is the lowest member of the standard scale of hardness used in testing minerals. In general its structure is crystalline and it is constituted primarily of silicate of magnesium. The analysis, which is given below, is that of a talc of high quality, which does not contain any more than 1.5 per cent of impurities. It may be mentioned that the high price of such a talc does not permit it being used in the compounding of rubber, except under special conditions.

Loss on ignition	15.06 per cent.
Silica—SiO_2	59.75
Alumina—Al_2O_3	1.00
Iron oxide—Fe_2O_3	0.40
Magnesia—MgO	33.67
Lime—CaO	negligible
Sulphuric acid—H_2SO_4	traces

The proportion of impurities in the varieties of talc, which are better suited for use in the compounding of rubber, is considerably higher. The analysis, which is given below, is that of a talc of much lower grade than the one given above.

Water combined—H_2O	12.14 per cent.
Silica—SiO	31.30
Alumina—Al_2O_3	21.92
Iron oxide—Fe_2O_3	1.12
Magnesia—MgO	32.01
Sodium oxide—Na_2O	0.19

In this case the impurities exceed 23 per cent. It is claimed that there are tales on the market which contain up to 40 per cent of lime, more than 14 per cent of iron and up to 70 per cent of silica.

As far as the harmfulness of the impurities that occur in talc is concerned from the standpoint of rubber compounding, lime occupies the first place. The reason for this is that lime often occurs in the form of large crystals. The sharp edges of these crystals act on the rubber like a multitude of little knives. Furthermore, there are tales, which are high in silica, but which contain a large proportion of small quartz crystals with sharp edges. Such tales cannot be used for mixing with the rubber batch. They are to be avoided by all means, for when they get into the rubber, which is afterwards vulcanized, they will gradually cut the rubber to pieces, especially if the rubber article is subjected to rubbing or friction, like a tire.

On the other hand the presence of graphite or iron is not considered to be a detriment, even though the color of the rubber product is darkened somewhat by their occurrence in the talc. Graphite has a greasy unctuous feeling just like talc. The iron exists in a fine state of sub-division and does not give the rubber maker any serious trouble.

Recovery of Waste Vulcanized Rubber

The process that is described in French Patent No. 539,743 is carried out in an apparatus, which is constructed in such a manner, that all the different stages of the recovery process can be performed therein. This apparatus is made in the form of a rotating drum, which is provided with a paddle agitator which turns in the opposite direction to the drum itself. The first step, after the rubber has been introduced into the drum, is to wash it thoroughly with a large amount of water. Then a caustic lye is added and the rubber is desulphurized with application of heat. The caustic solution is removed and the rubber is washed again. Finally the air is sucked out of the apparatus and a vacuum is produced, and the rubber is heated once more to dry it. Special inlets and pipes are provided for the water, soda, and the vacuum pump.

Transformation of Natural Rubber

This new process, which is concerned with the transformation of natural or artificial rubbers into other varieties of rubber or into materials, which resemble gutta-percha, has been patented by the Siemens and Halske Company in German Patent No. 354,344. The method consists in breaking down the hydro-halogenides or the halogenated derivatives of the products that are to be transformed, by means of a suitable dispersive agent. For example, rubber is made to swell up in a solution of chloroform and then hydrochloric acid gas is passed into the solution until saturation takes place. One part of the chlorhydrate is dissolved in ten parts of chloroform. Then there are added four times the calculated quantity of powdered zinc and small amounts of a dilute mineral or organic acid. Then the mixture is heated to boiling for a certain length of time, and then it is filtered to remove the zinc mud and the chloroform is recovered by distillation. The new rubber may be purified by dissolving it in alcohol and then reprecipitating. It is also possible to wash the residue directly with water or with very dilute acid and to eliminate the halogen, that still remains, by means of sodium and benzene containing a slight amount of water. The product, that is obtained in this manner, has a more or less high viscosity. When ethylene chloride is used in the place of chloroform, masses are obtained that bear a close resemblance to gutta-percha. Similarly the tetrabromide of rubber can also be used to good advantage for this purpose, but in this case it is necessary to put the product through a number of reduction until a material, free bromide, can be obtained.

Vulcanizing Apparatus

British Patent No. 184,265 is concerned with the construction of a vulcanizing apparatus, whose heat capacity is such that when the temperature within the same is raised to a point not less than the vulcanizing temperature, the article that is being vulcanized is maintained at that temperature for the time necessary to produce complete vulcanization. The apparatus consists of a container, which is surrounded by heat insulating material except on its working face and contains a substance which changes its state and gives out its latent heat at the temperature when vulcanization takes place.

Turpentine Substitute from Rubber Waste

In British Patent No. 188,008 there is described a process for obtaining an oil, which possesses the chemical properties of oil of turpentine, from rubber waste. The waste rubber is heated in retorts either directly or indirectly with superheated steam. The temperature of contents of the retorts is thus brought up to 220 degrees C. The vapors, which are produced by this treatment, are condensed and collected. The resulting oil is rectified, preferably by steam distillation and the rectified oil is bleached and deodorized.

Plastic Rubber Mass for Repair Work

An adhesive and plastic rubber mixture, which is used in repair work, is made from an ordinary vulcanizable mixture, which is softened by the addition of about 30 to 40 per cent of carbon tetrachloride or other suitable solvent. (British Patent No. 186,709).

Rubber Restriction Notes

By E. G. Holt, Acting Chief, Rubber Division of Department of Commerce

THE export restriction enactments have thus far been passed in Ceylon, the Straits Settlements, the Federated Malay States, and the Non-federated Malay States of Johore and Kedah. One point that does not seem to have been clearly understood by Americans is that the graduated export tax levied on shipments in excess of the prescribed percentage of one-quarter of standard production during any quarter is applicable only to the exports *during that quarter*. For example, if an exporter shipped only the prescribed percentage (60%) in the November, 1922-January 31, 1923 quarter and shipped up to five per cent in excess of the prescribed percentage during the succeeding quarter, the export duty (14c per pound for excess of not over 5 per cent) would apply to every pound of rubber exported during the second quarter, but would not relate back to shipments during the first quarter. This is true for exports from each restricted area except Ceylon, where the duty applicable in case of excess shipments applies only to the rubber exported *during the month* in which the prescribed percentage *was* exceeded.

Duties not Prohibitive in Case of High Prices

The British Colonial Office states that while the export duties are prohibitive in effect so long as rubber is at a reasonable level, they will cease to act as a deterrent if rubber reaches an excessive price.

Lower Duty Favors Exports of Liquid Latex

In the Malayan Tin and Rubber Journal, it is stated that the shipment of liquid latex is encouraged by the provisions that the rubber content per gallon of latex shall be taken as three pounds. The actual rubber content of latex from old estates approximates four pounds per gallon. The duty collected per gallon (at the minimum rate) is therefore only 6 cents (Straits currency) while on the rubber content at say, 3.75 pounds per gallon the duty should be 7½ cents. Furthermore, estates shipping rubber in latex form can export 25 per cent more rubber than estates shipping dry rubber.

Head-Estates not Restricting Production

An analysis of rubber production figures for British owned estates in various districts indicates that total production on these estates (which includes all estates for which December figures are available), was not greatly affected during the first two months under export restrictions. For estates in the Dutch East Indies there is to be noted a considerably increased output, sufficient to balance the slightly decreased outputs in other districts. In the Federated Malay States, Straits Settlements, and Ceylon, December production increased over November. Whether the excess production over amounts exportable at the minimum rate is being held in stock, or exported subject to the excess duties, cannot be said. In the compilation of the statistics, there were included 11 estates located in the Dutch East Indies; with a total "standard production" of 13,086,314 lbs.; 5 estates with standard production of 8,260,098 lbs. in the Straits Settlements; 29 estates with standard production 26,243,786 pounds in the Federated Malay States; and 4 estates with standard production 1,945,620 pounds in Ceylon.

For the four Ceylon estates, the monthly export allowance at the minimum rate in the first quarter is fixed at 97,328 pounds. The following table shows the amounts exportable at the minimum rate in the first quarter under restriction, and the monthly outputs in the August-December period of 1922:

	First Quarter	*Prior to Restriction*			*Under Restriction*	
	Allowance pounds	August pounds	September pounds	October pounds	November pounds	December pounds
Dutch East Indies	1,962,947	876,692	886,630	979,703	1,064,917	1,061,827
Straits Settlements	1,239,015	548,566	533,755	553,825	481,484	564,853
Federated Malay States	3,936,553	1,835,248	1,831,609	1,769,318	1,621,578	1,702,137
Ceylon	291,843	188,374	180,640	178,300	135,503	146,760
	7,430,358	3,448,880	3,432,634	3,481,146	3,303,482	3,473,577

The office of the Under Secretary, Federated Malay States has issued a communique stating:

"It having been brought to the notice of the Government:—(a) That many estates are not restricting production and are storing rubber in excess of the quantity which they are allowed to export as a speculation and not merely as a reserve against the period of wintering. (b) That rubber is being bought on a large scale without coupons or export licenses, with a view to its being stored until restriction ceases. Notice is hereby given that legislation is being prepared to deal with the subject generally.

"Notice is also given that after the 1st of January, 1923, licensed dealers in rubber will be required by rule made under the Rubber Dealers' Enactment to furnish monthly returns of the stock of rubber and export licenses or coupons in their possession and that a census will be taken on the 1st of May, 1923 of all rubber in the possession of producers."

Such regulation will probably not allow estates to indulge in full tapping during one period, store excess production, and export it in a succeeding period while the estates are being rested. Thus one possible means of lowering production may be eliminated. One argument offered in support of such regulation is that labor forces would be disorganized if estates generally adopted a policy of full tapping followed by a period of absolute restriction.

Regulation of Production Undesirable

The contemplated effect of the proposed regulations is to actually limit the output of rubber. Direct regulation of production was not recommended by the Stevenson Committee, and the alternative scheme of graduated export taxes was adopted. The only effect of unrestricted production will be to ultimately transfer the surplus stocks from England to producing countries; to take it from the hands of London speculators and put it in the hands of producers. There it would be subject to the export taxes and while it would constitute a reservoir safeguarding consumers against speculation in the market, it would be no menace to the planters. The requirement of monthly reports of stocks should serve as a sufficient check against possible smuggling. Labor forces will be more adversely affected by compulsory restriction of tapping which will necessitate the discharge of employes, than by allowing estates to maintain practically normal outputs, and storing excess production in Malaya. It is said that while much latent dissatisfaction with the interference in the economic law of supply and demand exists among the planters, they have been silent because of the initial success of the scehme in raising prices.

Japanese Owned Estates Abandon Appeal for Loan

Japanese owned rubber estates which have been in considerable distress, have been much heartened by the rise in price of crude rubber, and have decided to abandon their appeal to the Government for a ten million yen loan at a low rate of interest. It is understood that the Bank of Japan previously advanced them ten million yen, and it is believed the Oriental Colonization Bank has taken over that loan. Commercial Attache James F. Abbott, Tokyo, February 12.

Liberality in Fixing Standard Production

The official figure for "standard production" in British Malaya (270,000 tons) is about 34 per cent higher than the exports of rubber from Malaya in the Calendar Year 1920. During the visit to the United States of delegates from the Rubber Growers' Association they estimated the standard production of all areas, subject to either voluntary or compulsory restriction, as approximately 350,000 tons. The Stevenson Committee estimated the total plantation production during 1920 as 335,000 tons. Much liberality has seemingly been practiced in determining standard production. The net result for Malaya is that exports have been restricted to 60 per cent of 14 per cent of 1920 exports; in other words, only a 20 per cent restriction was called for.

South America Scrambling for American Rubber Plantations

Brazil, Bolivia, Columbia, Ecuador, Peru and Venezuela Have Given Reasons Why They Should Get American Capital

THROUGH their embassies in the United States South American republics have been making favorable overtures to American rubber manufacturers regarding the development of rubber plantations in their respective countries. All of these proposals have been made since the Department of Commerce at Washington announced that a special commission of experts are to be sent to investigate rubber conditions in the South American republics.

The countries primarily interested in upbuilding rubber production are Brazil, Bolivia, Colombia, Ecuador, Peru and Venezuela. Of these Brazil has possibly taken the most forward step, and the embassy in this country has announced that Brazil is prepared to cooperate with the Department of Commerce and American manufacturers in the development of rubber producing lands in the Para and Amazonas regions. The State of Para has declared that it is ready to modify present taxation laws affecting rubber, and that it is even willing to abolish the export tax, if a sound business proposal is made in behalf of American capital. The State of Amazonas has also signified its intention to cooperate with American manufacturers in the development of rubber plantations.

Brazil Willing to Modify Tax Laws

As a result of the action taken by these two states in the Brazilian Republic the embassy at Washington recently made this official statement: "The government of the State of Para offers, with the guarantee of the Federal Government, to permit American manufacturers to exploit its plantations in the public lands of the state, which are very productive and supply rubber of the best quality. To facilitate this the state government is willing to modify the taxation laws which affect rubber and even abolish the exportation tax if good, sound business like propositions are offered."

For the year ended December 31, 1922, manufacturers in the United States imported 11,092 tons of crude rubber from South America, the major part of which was produced in Brazil. The embassy also points out that the excellent quality of fine Para rubber has long been recognized.

Restrictive laws, however, have been blamed for the deterioration of the industry in Brazil. Now the Federal government as well as the state governments are willing to repent, and, therefore, plan to welcome an American commission to investigate rubber conditions there with open arms. Mr. J. C. Muniz, acting Consul General for Brazil in New York City, says in a statement that "the idea of sending a special commission to investigate the rubber conditions of the rubber in the producing countries seems very good to the Brazilian Government, which would support and help the commission in every way." Mr. Muniz thinks that it would be practical if the American Commercial Attaché in Rio de Janeiro could be instructed to visit those States and the Territory of Acre. A detailed report could then be presented to the American Government.

Other Brazilian Resources

Besides being a rubber country the Consul General points out that Brazil has other resources that American capital could develop. For example there are large agricultural areas that could be made more productive. There are also enormous tracts of land suitable for grazing, while the country's mineral resources as well as its lumber producing lands might also receive consideration. In fact Mr. Muniz states that "the State will receive the convenient immigrants which the capitalists wish to place there, the immigrants becoming owners of the grants of land which they improve."

Doctor Enrique Olaya, Minister from Colombia, when asked about the possibilities offered by his country as a rubber growing center, said: "Colombia possesses immense territories suitable for the cultivation of rubber on a large scale. The practical steps taken recently by the Department of Commerce of the United States, to find the various regions in the Latin American countries where new rubber plantations could be profitably located, have met with the most enthusiastic interest both from the Department of Agriculture of Colombia and from private concerns already engaged in the growing of rubber trees on a commercial scale and in the exportation of crude rubber to foreign countries."

The principal rubber-growing centers of Colombia are: The Atrato Regions on the Atlantic Ocean, the port for that region being the City of Cartagena, 1,900 miles from New York; the Magdalena Region in which 20,000 trees are said to be in full production; the Pacific Region which is only a 24-hour ride to the Panama Canal, and the territory located along the Vaupes, Orinoco and Rionergo Rivers. Present production in those valleys amounts to approximately 200,000 pounds annually. The Caqueta and Putumayo Valleys, located near the Vaupes, Orinoco and Rionergo Rivers, are also rubber producing lands. On account of the high cost of transportation most of the rubber coming from those valleys is taken out by way of the Amazon River.

At present labor and transportation problems are a big handicap to the development of rubber plantations in Colombia. Authorities state that export production could not be greatly stimulated unless the demand for rubber greatly increases, and unless the price for crude rubber in the New York and London markets becomes exceptionally high. As it is, rubber ranks eighth as a Colombia export, most of the rubber biscuits being floated down the Amazon River or one of its tributaries. However, Dr. Olaya is optimistic, and is hoping that the surveyors appointed by the Department of Commerce will extend their investigations to Colombia.

Ecuador Possesses Well Suited Lands

Ecuador also has extensive rubber producing territories in her tropical region. Mr. Juan Barberis, Secretary of the Legation of Ecuador, recently said that Ecuador possesses "tracts of land that are well suited for the scientific cultivation of rubber, as has been proven by Mr. Wilson Popenoe, an expert of the Department of Commerce of the United States, who visited those territories and examined them carefully." Mr. Barberis thinks that Ecuador's nearness to the United States entitles her to some consideration from our government and American manufacturers as one of the possible sources which consumers in the United States profitably develop.

As far as Bolivia is concerned nearly all the rubber-bearing lands in that country are now included in grants to which titles have either been perfected or which are the subject of negotiations with the Bolivian Government. The United States Department of Commerce, however, avers that many holders of lands in that country have not complied with the requirements of the laws under which they have received their grants, and the American government, therefore, is of the opinion that large areas could be obtained by American manufacturers in Bolivia.

Taken collectively, however, all South American countries in the tropical region have recently shown a keen interest in the further development of rubber plantations by American concerns, and they have been making proposals and presenting data with the hope that American capital may be used to develop plantations in their respective countries.

MARKETS

Cottons and Fabrics

NEW YORK, April 18, 1923

All records of the American Cotton Industry were broken when American spinners consumed in the month of March 623,105 bales of lint. This new record of consumption was 103,000 bales more than consumption in March a year ago and exceeded the previous record made in May 1917 by almost 8,000 bales. The consumption of the staple in January, which was a record for that month, amounted to 610,379 bales and in February 566,924 bales.

Consumption in cotton-growing states also was a record breaker 392,027 bales having been used, compared with a previous record of 351,240 bales. The remainder, 231,078 bales, also indicated increased activity in the northern mills.

A new high mark also was made in the number of spindles active during the month, the aggregate being 35,500,518, compared with 35,307,707 in February and 35,240,853 in January and 31,872,642 a year ago.

Stocks of Cotton Reduced

It was further shown in the announcement of the Census Bureau that stocks of cotton in the United States had been reduced by 414,063 bales during the month and 896,847 during the twelve months ended on March 31. Cotton on hand, March 31 in consuming establishments aggregated 2,034,535 bales, compared with 2,021,903 on February 28 this year and 1,557,023 on March 31, last. Cotton on hand March 31 in public storage and at compressers amounted to 2,377,799 bales, making a total of 4,412,334 bales as compared with 5,309,281 bales on March 31, last year and 4,826,397 on February 28, this year.

During the eight months ended March 31, 4,462,608 bales went into manufacture against 4,003,754 in the corresponding period of 1921-22.

Cotton Imports and Exports

The reports on imports and exports also are interesting. Imports for March totalled 53,219 bales compared with 48,648 in March last year. Exports during the same month aggregated 318,210 bales compared with 359,657 bales in February this year and 461,484 bales in March last year. The imports during the eight months period showed considerable increase due to the fact that long staple cotton was placed on the free list in the new tariff. The total imports during the eight months amounted to 388,409 bales compared with 59,957 bales in the preceding eight months period.

The total consumption of 623,105 bales during March included 27,407 bales of Egyptian, 7,622 other foreign, 4,633 bales of American-Egyptian and 358 Sea Island. Stocks of 2,034,535 bales, indicated above as being in consuming establishments, included, 92,617 bales of Egyptian, 22,107 other foreign, 16,272 American Egyptian and 3,001 Sea Island. Stocks of 2,377,799 bales in public storage and at compressors, included, 79,827 bales of Egyptian, 18,652 other foreign, 26,405 American-Egyptian and 4,675 Sea Island.

Effect on the Market

The cotton exchanges were depressed by the Census Bureau's report and prices steadily declined. There was only a limited demand and the speculative element in the market was quick to take advantage of the announcement that the mills had so greatly increased their stocks. Another depressing influence on sentiment were the figures issued by the International Federation of Master Spinners and Manufacturers some days previous which showed a considerable drop in the use of American cotton by foreign countries. The quarterly issue of the International Cotton Bulletin also, earlier in the month, had reported that most of the European and Asiatic countries had reduced their consumption of American cotton and were depending on outside crops.

Other Countries Aroused by Shortage

Considerable interest in raising cotton has been aroused in other countries by the uncertain future of the American crop due to the ravages of the boll weevil. There is said to be 4,000,000 acres of land in South Africa suitable for growing cotton, 2,000,000 acres in the Transvaal and the remainder in Natal. At present only about 5,200 acres in Natal are under cotton. The cotton grown in this district is known as "Griffin" cotton and has a staple of 1⅛ inches.

And in Spain the Spanish Cotton Growers' Association is preparing for the growing of cotton on a large scale in various Spanish provinces and the government is to be requested to grant a subsidy until the industry is self supporting. It is planned to begin with an annual production of 10,000 bales and increase until the whole of the national requirements amounting to 400,000 bales annually can be grown on Spanish soil.

India is increasing in cotton production and recent estimates of the present cotton crop in that country give a forecast of 5,196,000 bales, which, while not as large as last year, compares with an average of 4,752,000 bales for the five preceding years.

COTTON PRICES

Cotton prices as of April 18 on the New York Cotton Exchange follow:

	Open.	High.	Low.	Close.	Previous Day.
May	28.70	28.85	28.43	28.79@28.81	28.53
July	27.95	28.97	27.63	27.85@27.88	27.77
Oct.	25.10	25.10	24.79	24.89@24.92	24.95
Dec.	24.52	24.53	24.31	24.42	24.48
Jan.	24.22	24.25	24.03	24.13	24.16

EXTRA STAPLE COTTON

The extra staple cotton market was under depressing conditions and during the two weeks was unusually quiet. As yet offerings of new crop cotton has not exerted any influence as everyone is at sea as to the kind of influence the prospective crop will exert. Pimas were inactive with prices as follows: No. ones, 39 cents; No. twos, 38 cents; No. threes, 37 cents. Egyptians advanced a little and medium grade uppers were quoted from 34¾ to 35¼ cents. Medium grade Sak on shipment was around 38 cents.

Strict middling cotton, classed as to staple on a very high standard, was quoted at the close of the period as follows:

1 1/8 inch, 33½ to 34 cents
1 3/16 inch, 34½ to 35 cents
1 1/4 inch, 36 to 37 cents
1 5/16 inch, 38 to 40 cents

CORD FABRICS

Combed Sakellarides		.80	@	.85
Combed Peeler	lb.	.74	@	.77
Carded Peeler	lb.	.65	@	.70
Combed Egyptian uppers	lb.	.73	@	.78
Carded Egyptian uppers	lb.	.68½	@	.72

SQUARE WOVEN

17¼-ounce Egyptian uppers, combed	lb.	.70	@	.75
17¼-ounce Egyptian uppers, carded	lb.	.65½	@	.68
17¼-ounce Sakellarides, combed	lb.	.77	@	.82
17¼-ounce Peeler, combed	lb.	.72	@	.75
17¼-ounce Peeler, carded	lb.	.61	@	.67

SHEETINGS—The market in general was quiet during the period. There was little business passing and prices showed a tendency to ease off.

DUCKS—Most items, particularly single filling, double filling and enameling duck, showed improvement. The mills report good sized orders and in some cases business enough to keep them active for several months ahead. Single filling is quoted at 23½ to 25 cents and enameling 53 to 60 cents.

BURLAPS—No particular interest was shown in the burlap market at any time during the two weeks. Both lights and heavy weights were extremely quiet. Reports from Calcutta show the following

(Continued on Page 69)

Chemicals and Compounding Ingredients

THE INDUSTRIAL CHEMICAL MARKET—NEW YORK, April 18, 1923—Price movements in the industrial chemical market continued to show an upward tendency. There was excellent inquiry for goods during the two weeks past and manufacturers find much satisfaction in the fact that consumers are making steady withdrawals against standing contracts. In certain departments, particularly in compounding ingredients, there was marked expansion in business done and some materials are expected to register further advances if the cost of production continues to increase. The spot market in general was not up to the rest of the market but there was no noticeable accummulation of goods. Fundamental conditions are better than at any time during the year and on the whole prices do not seem likely to recede.

ACCELERATORS

Organic

Aldehyde ammonia, crystals	lb.	$ .91 @	.95
Aniline oil, drums	lb.	.16½ @	.17
Diphenylguanidine	lb.	1.25 @	—
Excellerex,	ton	17.00 @	—
Formaldehyde-Aniline	lb.	.50 @	.52
Hexamethylene-tetramine	lb.	.90 @	.95
Paraphenylenediamine	lb.	1.50 @	1.55
Thiocarbanilide, kegs	lb.	.35 @	.40
Vulcocene	lb.	.35 @	—

Inorganic

Lead, sublimed blue	lb.	.09 @	—
Lead, white	lb.	.09 @	—
Litharge, domestic	lb.	10.90 @	11.74
imported	lb.	.17 @	—
Lime, Superfine	lb.	.02 @	.02½
Magnesia, calcined, light,	lb.	.23 @	.24
extra light	lb.	.45 @	—
heavy	lb.	.05 @	.06
Orange Mineral	lb.	14.40 @	14.50

COLORS

Blacks

Carbon Black	lb.	.20 @	.25
Micronex	lb.	— @	—
Lamp Black	lb.	.12 @	.40
Bone "	lb.	.05½ @	.07½
Drop "	lb.	.07½ @	.10
Ivory "	lb.	.15 @	.45

Blues

Prussian	lb.	.55 @	.60
Ultramarine	lb.	.15 @	.35
Cobalt	lb.	.21 @	.26

Browns

Iron oxide	lb.	.03¾ @	.06
Sienna, Italian,	lb.	.06 @	.08¾
Umber, Turkey,	lb.	.04 @	—
Vandyke, domestic	lb.	.03½ @	.04½

Greens

Chrome, light	lb.	.32 @	.34
medium	lb.	.35 @	.36
dark	lb.	.36 @	.45
commercial	lb.	.12 @	—

Reds

Antimony, crimson	lb.	.35 @	.50
golden	lb.	.18 @	.35
red sulphuret	lb.	.20 @	.22
Indian, English,	lb.	.12 @	.15
Para toner	cwt.	1.00 @	1.10
Toluidine toner	lb.	2.10 @	—
Venetian red	lb.	.03½ @	.06
Vermillion, quicksilver, English	lb.	1.30 @	—
domestic	lb.	.25 @	.30

Whites

Albalith	lb.	.07 @	.07¾
Aluminum bronze	lb.	.55 @	.60
Azolith	lb.	.07 @	.07½
Lithopone, domestic (factory)	lb.	.07 @	.07½
Zinc Oxide—American Process			
American Horse Head special	lb.	.08½ @	.09
XX red	lb.	.08 @	.08½
American Azo: ZZZ (lead free)	lb.	.08 @	.08½
ZZ (under 5 per cent leaded)	lb.	.07¼ @	.07¾
Z (8-10 per cent leaded)	lb.	.07¼ @	.07¾
Zinc Oxide—French Process			
White seal	lb.	.12 @	.12¼
Green seal	lb.	.10¾ @	.11¼
Red seal	lb.	.09¾ @	.10¼

Yellows

Phenol	lb.	.55 @	.57
Chrome, light		.20 @	.21
dark and medium	lb.	.20 @	.21
Cadmium Sulphide	lb.	1.50 @	1.75
Ocher, French	lb.	.02¾ @	.03½
domestic	lb.	.02½ @	.03

COMPOUNDING INGREDIENTS

Aluminum flake	ton	25.00 @	30.00
hydrate	lb.	.18 @	.20
Ammonia carbonate,	lb.	.07¾ @	.10½
Barium carbonate	ton	.69 @	.70
Barium Dust	lb.	.05 @	—
Barytes southern off-color, ton		15.00 @	20.00
Western, prime white	ton	28.00 @	—
Basofor	lb.	.04¾ @	—
Blanc fixe, dry f.o.b. works	lb.	.04¼ @	.04½
Carrara filler	lb.	.01½ @	.02
Chalk, precipitated, extra light	lb.	.04½ @	.05
heavy	lb.	.03¼ @	.04
Clay, China, domestic,	ton	15.00 @	16.50
imported	ton	16.25 @	23.25
Dixie	ton	22.00 @	32.00
Blue Ridge	ton	20.00 @	30.00
Fossil flour	ton	60.00 @	—
Glues, extra white	lb.	.30 @	.40
medium white	lb.	.20 @	.26
cabinet	lb.	.18 @	.30
cabinet low grade	lb.	.16 @	.19
common bone	lb.	.08½ @	.14
Graphite flake, bbls.	lb.	.05 @	.06
amorphous	lb.	.05 @	—
Infusorial earth, powdered	ton	60.00 @	—
bolted	ton	65.00 @	—
Liquid latex	gal.	1.30 @	—
Mica, powdered	lb.	.15 @	—
Rotton Stone (powdered)	lb.	.02½ @	.04½
Silica (gold bond)	ton	31.00 @	—
Soapstone, powdered	ton	12.00 @	15.00
Starch, powdered	cwt.	2.80 @	2.90
Talc, domestic	ton	15.00 @	18.00
French	ton	20.00 @	—
French, high grade	ton	40.00 @	—
Italian	ton	47.00 @	58.00
Terra Alba	cwt.	1.85 @	2.00
Tripoli, white	lb.	.02 @	.02½
Whiting, commercial	cwt.	1.00 @	1.25
Quaker	ton	13.00 @	15.00
English, cliffstone	cwt.	1.50 @	2.00
gilder's bolted	cwt.	1.10 @	1.25
Paris white American	cwt.	1.25 @	1.50
Wood pulp XXX	ton	35.00 @	—
" " X	ton	25.00 @	—
Zinc Oxide— 5 per cent leaded		.07¼ @	.07¾
10 per cent lead sulphate	lb.	.07¼ @	.07¾
20 per cent lead sulphate	lb.	.07¼ @	.07¾
35 per cent lead sulphate	lb.	.07¼ @	.07¾

(Also see whites)

MINERAL RUBBER

Gilsonite	ton	65.00 @	—
Genasco (factory)	ton	60.00 @	—
Hard hydrocarbon	ton	33.00 @	42.00
Soft hydrocarbon	ton	32.50 @	38.00
Pioneer M.R.	ton	42.00 @	44.00
320/340 M. P. hydrocarbon (c. l. factory)	ton	45.00 @	50.00
300/310 M. P. hydrocarbon (c.l. factory)	ton	40.00 @	45.00
Synpro, granulated, M. R. (factory)	ton	55.00 @	65.00

SOFTENERS

Acids

Acetic, 28 per cent	cwt.	3.17½ @	3.92½
Cresylic, 97 p. c.	gal.	1.50 @	1.60
95 p. c.	lb.	.75 @	.85
Muriatic, 20 degrees	cwt.	1.00 @	1.10
Nitric, 36 degrees	cwt.	4.50 @	5.00
Sulphuric, 66 degrees	ton	14.00 @	16.00
60 degrees	ton	9.00 @	12.00
Tartaric, crystals	lb.	.35 @	—

Alkalies

Caustic soda, 76 p.c.	cwt.	3.50 @	3.75
Soda ash, 58 p.c.	cwt.	1.95 @	2.30

Oils

Castor, No. 3, bbls.	lb.	.14 @	—
Corn, crude, bbls.	lb.	.12½ @	—
refined	lb.	.13¼ @	—
Chinawood, bbls.	lb.	.25 @	.35
Cottonseed,		.10½ @	.12¾
Glycerine, drums	lb.	.18½ @	.19
Linseed, domestic	gal.	1.11 @	1.20
imported	gal.	.86 @	—
Palm Niger		.08⅝ @	—
Lagos	lb.	.08¾ @	—
Peanut, domestic, crude	lb.	.14 @	.16
Pine, steam distilled	gal.	.75 @	.80
Rapeseed, refined	gal.	.85 @	.88
blown	gal.	1.00 @	1.05
Rosin, first rectified	gal.	.46 @	—
second rectified	gal.	.48 @	—
Tar, commercial	gal.	.31½ @	—
Soya Bean		.13 @	.13¾
Petrolatum, standard	lb.	.05 @	.08
dark amber	lb.	.04 @	—

Resins and Pitches

Cumar resin, hard	lb.	.09 @	.10
soft	lb.	.09 @	.10
Tar Retort	bbl.	12.50 @	—
kiln burned	bbl.	13.50 @	—
Pitch, Burgundy	lb.	.05 @	.06
coal tar	lb.	.01½ @	—
pine tar	lb.	.03 @	—
Rosin, grade K	bbl.	6.35 @	—
Shellac, fine orange	lb.	.90 @	—

Solvents

Acetone, drums	lb.	.21 @	—
Alcohol, denatured, No. 1 bbls.	gal.	.43 @	.45
Benzol, 90 per cent	gal.	.27 @	.33
pure	gal.	.30 @	.35
Carbon bisulphide,	lb.	.06 @	.06¾
Tetrachloride	lb.	.09 @	.10½
Dimethylaniline	lb.	.42 @	.43
Motor gasoline, steel bbls.	gal.	.24½ @	—
Naptha, V. M. & P.	gal.	.23½ @	—
Toluol, pure	gal.	.30 @	.35
Turpentine, spirits	gal.	1.56 @	—
wood	gal.	1.42 @	—

Waxes

Beeswax	lb.	.38 @	.40
Carnauba, No. 1	lb.	.43 @	.44
Ceresin, white	lb.	.10 @	.11
Bayberry	lb.	.25 @	.28
Montan, crude	lb.	.04½ @	.05
Ozokerite, black	lb.	.23 @	.24
green	lb.	.27 @	.28
Paraffine	lb.	.02¾ @	.05
Sweet wax	lb.	.10 @	.12

SUBSTITUTES

Black	lb.	.09 @	.13
White	lb.	.09½ @	.16
Brown	lb.	.09 @	.15
Brown factice	lb.	.10 @	.16
White factice	lb.	.10 @	.16

VULCANIZING INGREDIENTS

Black hyposulphite	lb.	.19 @	—
Sulphur chloride (jugs)	lb.	.13½ @	.15
" " (drums)	lb.	.08 @	.10
Sulphur flour (bbls.)	cwt.	2.60 @	3.15
(bags)	cwt.	2.35 @	2.90
Sulphur, 100 per cent pure,		— @	—
Bergenp't brand (bags)	cwt.	2.45 @	2.80
(bbls.)	cwt.	2.70 @	3.05

Chemical Notes

Zinc Oxide—The market for this material was very active and the record of production and sales is the greatest in the industry. Tire manufacturers continue to be heavy purchasers. At the close of the period the undertone of the market was very firm with prices unchanged. French process, red seal was quoted at 9¾ cents a pound for bags; barrels, in lots, 10 cents and less than car lots, 10¼ cents; white seal, car lots, 12 cents and less than car lots, 12½ cents; green seal, car lots, 11 cents and less than car lots, 11¼ cents.

Litharge—Prices remained unchanged and there was a good demand noted among the rubber makers. Casks are quoted at 10.90 cents a pound; 100 to 500 pound kegs, 14.50 cents; 500 to 2,000 pounds, 13.05 and 2,000 to 10,000 pounds, 12.52 cents.

Orange Mineral—Business slowed up somewhat during the period. Prices of both domestic and imported material remained unchanged; the latter being quoted at 15.50 cents for English and 17 cents for French with domestic at 14.40 cents.

Lithopone—Domestic producers have been very busy in their efforts to keep up with the demand. More Belgium material has been coming in since the advance in price of domestic but the market has been able to absorb all the lithopone offered. Barrels, car lots, are quoted at 7 to 7¼ cents; less than car lots, 7¼ to 7½ cents; bags, 7 cents.

Barytes—Producers have been very busy delivering on contract as consumption continues to be very heavy and promises to continue so for a long time to come. No further advance beyond the $28 price is expected at this time. Southern off color continues at $15 to $20 a ton, and Prime Western at $28 a ton.

Whiting—The demand continued good in a steady market with commercial quoted at $1.00 per 100 pounds; American paris white, $1.15 and English cliffstone, $1.50.

Talc—This product has been in excellent demand all through the season. No price changes were reported, domestic being quoted at $15 to $18 per ton. Italian, $47 to $55; French, $20; high grade French, $40.

Blanc Fixe—The price of blanc fixe was not advanced with the other pigments and since the price changes the demand for this material has greatly increased. Makers still offer dry at $80 a ton.

Hexamethylenetetramine — Imported material has been advanced to 80 cents per pound as the minimum price but producers here continued to quote 90 to 95 cents. The market was quiet.

Caustic Soda—The demand has been excellent and the last month was the best of the year. The market continues very firm with prices unchanged—standard brands being offered at $3.50 to $3.75, per 100 pounds, basis 76 per cent.

Soda Ash—Producers have been operating plants at capacity and trading has been very active. Withdrawals on contracts have been unusually heavy. Dealers offered 58 per cent basis at $1.95 to $2.30 per hundred pounds.

Aniline Oil—Supplies were none too plentiful but producers continued to quote 16 cents per pound in car lots. Sellers were asking 17 cents for drums in car lots.

Scrap Rubber

NEW YORK, April 17, 1923

There was but little factory buying in the scrap rubber market during the past two weeks. As a result there was a tendency for prices to ease off. Dealers are confident that there will be a revision upward shortly, and claim that there is generally a dullness before there is an upswing in prices.

The present bearish tendency was felt by the entire list, prices being off from ¼ to 5 points. In other words the market today is a buyer's market.

For instance standard white auto is quoted $25 @ 30, inner red tubes .04 @ .04¼c mixed auto 15 @ 16c and boots and shoes .03¼ @ .03½c.

Prices quoted at this date are:

Auto tire peelings	.01¼ @	.01½
Standard White auto ....ton	25.00 @	30.00
Mixed auto .....ton	15.00 @	16.00
Bicycle tires	.10 @	.12
Clean solid truck tires	.01¾ @	.02
Boots and shoes	.03¼ @	.03½
Arctics, trimmed	.02½ @	.02¾
Arctics, untrimmed	.02 @	.02¼
Inner tubes, No. 1	.05¾ @	.06¼
Inner tubes, compounded	.04½ @	.04¾
Inner tubes, red	.04 @	.04¼
Battery jars, clean hard rubber	.02 @	.02½
Rubber Hose	.00¾ @	.00⅞
Red packing	.01 @	.01¼
White druggist sundries	.04 @	—

Reclaimed Rubber

NEW YORK, April 17, 1923

There has been a slight recession in reclaimed prices which are only temporary for dealers are expecting good business this year at average to firm prices. Demand is active. Quotations are as follows:

Standard Reclaims		
Floating Tube	.17 @	.18
Friction	.24½ @	.25½
Boots and Shoes	.11½ @	.12
Boots and Shoes (washed)	.13¾ @	.14¼
Mechanical	.10 @	.11
Hose	.10 @	.11
Tires, truck	.09 @	.09½
Tires, auto	.10 @	.10½
White	.13½ @	.14

Crude Rubber

NEW YORK, April 17, 1923

Recent large imports of crude rubber from London and the Far East are held responsible for the weakness that the crude rubber market evidenced during the past two weeks. During the past three months 81,000 tons of crude rubber have been imported from London. Dealers point out, however, that under the Restriction Act total shipments from the Far East will total about 230,000 tons, whereas the normal 8 month supply should average around 275,000 tons. Consequently, dealers claim that the market has a strong undertone.

There was but little business done during the past fortnight, it being asserted that manufacturers are following a hand to mouth policy. Rubber smoked sheets and first latex spot are quoted at 32½ cents, May and June deliveries being quoted at 33½ cents. Paras and the lower grades of plantations were dull and nominal.

Concensus of opinion among crude rubber dealers is that the British Restriction Act has been discounted by buyers and that manufacturers have larger supplies on hand than reported.

Quotations of this date are as follows:

Plantations		
Ribbed Smoked Sheets	.32¼ @	.32½
First Latex, spot	.32¼ @	.32½
May, June	.32½ @	.33½
July, December	.33 @	.33¼
Amber Crepe No. 1, spot	.31½ @	.32
Amber Crepe No. 2, spot	.31 @	—
Amber Crepe No. 3, spot	.31 @	—
Light Clean Thin Brown Crepe	.30½ @	—
Commercially Clean Thin Brown Crepe	.30½ @	.31
Specky Brown Crepe	.30⅜ @	.30½
Roll Brown Crepe, spot	.28¾ @	.30
Paras		
Madeira Fine	.29½ @	—
Acre Fine	.29 @	—
Up-river Fine	.29 @	—
Up-river Medium	.27¼ @	—
Up-river Caucho Ball (shipment)	.27½ @	—
Up-river Coarse	.26¼ @	—
Islands Fine	.28 @	—
Islands Medium	.26 @	—
Islands Coarse	.14 @	—
Cameta	.14 @	—
Xingu Ball	.25½ @	—
Tapajos Fine	.28 @	—
Tapajos Medium	.26 @	—
Pontianac		
Prime Pressed	.13 @	.14
Plantation	.07½ @	—
Bangermassin	.08 @	—
Siak Gutta Percha	.20¾ @	—
Prime Macassar	3.00 @	—
Balata		
Surinam Sheets	.80 @	.85
Columbia Block	.60 @	.65
Venezuela Block	.70 @	.75

Cotton Markets

(Continued from Page 67)

shipments from that port to North America during March: Atlantic coast, 101,000,000 yards; Pacific coast, 13,000,000 yards.

SHEETINGS		
40-inch 2.50-yard .....yd.	.19½ @	—
40-inch 2.85-yard .....yd.	.16¾ @	—
40-inch 3.15-yard .....yd.	.16½ @	—
40inch 3.60-yard .....yd.	.14¾ @	—
40-inch 3.75-yard .....yd.	.13 @	—
40-inch 4.25-yard .....yd.	.11½ @	—
DUCKS		
Belting .....lb.	.48 @	.49
Hose .....lb.	.48 @	.49
Enameling .....lb.	.53 @	.58
Shoe Ducks .....lb.	.55 @	.58
Single filling .....lb.	.23½ @	.25
Double filling .....lb.	.25 @	.27
BURLAPS (Carload Lots)		
7½-ounce 40-inch	7.10 @	7.20
8 -ounce 40-inch	7.10 @	7.30
10 -ounce 40-inch	8.30 @	8.40
10½-ounce 40-inch	8.35 @	8.45
DRILLS		
37-inch 3.25-yard .....yd.	.15 @	—
37-inch 2.75-yard .....yd.	.17 @	—
37iinch 3.00-yard .....yd.	.16 @	—
37-inch 3.50-yard .....yd.	.14½ @	—
37-inch 3.95-yard .....yd.	.13 @	—
OSNABURGS		
30-inch 7-ounce	.18 @	—
40-inch 7-ounce	.19¼ @	—

American Rubber Patents

GRANTED APRIL 3, 1923

1,450,163 Heavy Truck Tire Flap. Adrian O. Abbott, Jr., Detroit, Mich., assignor to Morgan & Wright, a Corporation of Michigan.
1,450,170 Pneumatic Tire Casing. Peter J. Clarke, Chicago, Ill.
1,450,209 Tire Tool. Fred Hays, Tuckahoe, N. Y.
1,450,235 Machine for Use in Manufacturing Tire Tubes. Harry W. Smolk, Cleveland, Ohio.
1,450,256 Process and Apparatus for the Manufacture of Solid Tires. Daniel E. Goodenberger, Akron, Ohio, assignor to The Firestone Tire and Rubber Co., Akron, Ohio.
1,450,288 Tire Armor. William L. Hamm, Oskaloosa, Iowa.
1,450,303 Suspenders. Washington M. Potter, Freedom, Pa.
1,450,314 Antiskid Chain. Herbert E. Twitchell, Hamilton, Ohio, assignor of one-half to August Kriegenhofer, Hamilton, Ohio.
1,450,328 Jacket for Preliminary Cure. Thomas Midgley, Hampden, Mass., assignor to The Fisk Rubber Co., Chicopee Falls, Mass.
1,450,388 Detachable Chain Hook. John G. Rieff, London, Wis.
1,450,389 Detachable Chain Hook. John G. Rieff, London, Wis.
1,450,462 Method of Acidizing Rubber Waste. Richard A. Terhune, Fairhaven, Mass., assignor, by mesne assignments to Conrad Gaschott, Corona, N. Y.
1,450,473 Resilient Tire. Henry A. Carson, St. Joseph, Mo.
1,450,484 Vehicle Wheel. Wallace Childs, Kansas City, Mo.
1,450,610 Vehicle Wheel. Max Schoeke, Manchester, England.
1,450,671 Resilient Wheel. Irvin Lincoln, Lansing, Mich.
1,450,740 Resilient Wheel. Milton J. Helmick and Thomas L. Agnew, Albuquerque, N. M.
1,450,747 Tension Device for Tire Building Machines. Thomas Midgley, Hampden, Mass., assignor to The Fisk Rubber Co., Chicopee Falls, Mass.
1,450,748 Spring Wheel. James A. Morrow, Wichita Falls, Tex.
1,450,764 Antiskid Tire Protector. Berry Martin Tallery, Morrow, Ark.
1,450,769 Tire Deflation Signal. Raymond A. Crosby, Holyoke, Colo.
1,450,778 Resilient Wheel. John C. Jackson, Philadelphia, Pa., assignor of one-fourth to Harry Wissahickon, Philadelphia, Pa.
1,450,779 Antiskid Device. Mathias J. LaRiviere, Waterbury, Conn.
1,450,786 Automobile Tire Rim. John A. Beddingfield, Fort Valley, Ga.
1,450,787 Automobile Tire Rim. John A. Beddingfield, Fort Valley, Ga.
1,450,794 Vulcanizer. David G. Chandler, Racine, Wis.
1,450,800 Pneumatic Tire. Truman D. Frazier, Martins Ferry, Ohio.
1,450,818 Cushion Tire. Charles F. Ribak, San Francisco, Calif.
1,450,843 Non Pneumatic Tire. Carl A. Fisk, New York, N. Y.

GRANTED APRIL 10, 1923

1,450,944 Tire Spreader. William B. Ecker, Chicago, Ill., assignor of one-fourth to Dwight B. Cheever, Chicago, Ill.
1,450,954 Shock Absorber. Stephen Gavel and Eber Frost, Olds, Alberta, Canada.
1,450,953 Abdominal Supporter. Marie Alida Fontaine, Manchester, N. H.
1,450,965 Tool for Tire Rims. Benjamin V. Unger, New Haven, Conn.
1,451,013 Articulated Tire Guard. Henry S. Ersch, New York, N. Y.
1,451,025 Vulcanizing Valve. Henry Philip Kraft, Ridgewood, N. J.
1,451,038 Pressure Gage. Robert Faries, Williamsport, Pa., assignor to A. Schrader's Son, Inc., New York, N. Y.
1,451,051 Wrapping and Unwrapping Machine. Frank M. Pierce, Chicago, Ill., assignor to Pierce Wrapping Machine Co., Chicago, Ill.
1,451,054 Nonskid Tire Protector. Battista Santini, Roseville, Calif.
1,451,074 Nonskidding Tire Shoe. Joseph Arthur Le Blanc, Salem, Mass.
1,451,121 Tire Repair Device. Edith M. Simpson and James H. Buckles, Nighthawk, Wash.
1,451,143 Demountable Hard-Rubber Cushioned Tire and Rim. James H. Clark, Portage, Wis., assignor of one-half to J. M. Russell, Portland, Ore.
1,451,167 Method and Apparatus for Forming Strips and Applying the Same to Articles. Frank J. MacDonald, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.
1,451,169 Apparatus for the Preparation of Tire Beads. Harvey F. Maranville, Akron, Ohio, assignor to The Firestone Tire and Rubber Co., Akron, Ohio.
1,451,252 Vehicle Wheel. Noah Cornfield, Detroit, Mich., assignor to Acme Cushion Wheel Co., Wilmington, Del.
1,451,253 Vehicle Wheel. Noah Cornfield, Detroit, Mich., assignor to Acme Cushion Wheel Co., Wilmington, Del.
1,451,257 Pressure Gage. William P. Hammond, Passaic, N. J., assignor to A. Schrader's Son, Inc., Brooklyn, N. Y.
1,451,269 Resilient Wheel. Harry M. Patch and Richard R. Romney, Seattle, Wash., assignors to Ellis Resilient Wheel Corp., Seattle, Wash.
1,451,291 Tire Alarm. Elmer E. Darling, Salt Lake City, Utah.
1,451,304 Inner Tube. Mary Pierson Mitchell, Eaton, Ohio.
1,451,307 Pressure Gage. Maxmillian Charles Schweinert, West Hoboken, N. J., and Henry P. Kraft, Brooklyn, N. Y., assignors to A. Schrader's Son, Inc., Brooklyn, N. Y.
1,451,327 Vehicle Tire. John Darius Cunningham, Houston, Tex.
1,451,344 Tire Changer. Winfield S. Robinett, Seattle, Wash.
1,451,494 Resilient Shoe Heel. Eugene L. Des Vere, Chicago, Ill.
1,451,510 Mold for Rubber Heels. Levi Holmes, Raynham, Mass.
1,451,514 Air Pressure Indicator and Gage. Edward C. Miller, Williamsport, Pa.
1,451,517 Spring Wheel. William H. Smith, Bridgeport, Conn.
1,451,536 Tire Tube. Solomon L. Davis and Earl H. Rinehart, El Paso, Tex.
1,451,640 Pneumatic Tire. Elmer H. Wickert, St. Paul, Minn.
1,451,645 Cord Tire. Charles L. Archer, Des Moines, Iowa.

New Incorporations

CALIFORNIA

Variety Rubber Co., to manufacture rubber goods. Capital stock, 100,000; shares, 10,000 at $10 par. Incorporators: P. C. Steinmetz, P. M. Paulsen and D. C. Paulsen. Attorney, Roe M. Barrett, Santa Rosa, California.

DELAWARE

Delaware Tire and Rubber Co., to manufacture tires and tubes. $10,000. Representative, William D. Pawley, Wilmington, Delaware. Principal office, Wilmington, Delaware.

Indiana Rubber Products Co., to deal in rubber and gutta percha. $10,000,000. Incorporators: C. H. McDermott, Frank E. Teachout—Oak Park, Illinois; R. S. Cheny—Park Ridge, Illinois. Agent, Capital Trust Co. of Delaware.

H. & C. Tube and Tire Co., to manufacture and sell tubes, tires and other manufactured rubber goods. $750,000. Incorporators: T. L. Croteau, M. A. Bruce and A. M. Hooven— Wilmington, Delaware. Delaware representative, Corporation Trust Co., of America, Du Pont Building, Wilmington, Delaware.

United States Liquid Rubber Paint Co., to manufacture and sell liquid paint. $1,000,000. Incorporators: S. Waxman, J. A. Lehman and Sidney B. Klee—New York City. Delaware agent, Arley B. Magee, Dover, Delaware.

ILLINOIS

Freeman Tire Co. $5,000. Principal office, 3803 W. Roosevelt road, Chicago. Incorporators: Bernard S. Freeman, Julian Freeman and A. L. Freeman. Representative, S. Waldman, 32 S. Dearborn street, Chicago.

MINNESOTA

St. Paul Tire & Rubber Co., to manufacture rubber goods. $240,000. Directors: William F. Collins, John T. Cuskaden, Gertrude M. Collins, Clyde R. Yater and Harry A. Favors. Principal office, St. Paul, Minnesota.

Business Conditions Excellent

Charles M. Schwab, chairman of the Bethlehem Steel Corporation, in a recent interview, declared that business conditions at present are unusually good.

A factor that promises well, according to Mr. Schwab, is the great increase in the demand for machine tools and manufacturing machinery in recent months, stating that the manufacturing implement market is an excellent barometer of business conditions.

NEW YORK

United States Liquid Rubber Paint Co. $1,000,000. Incorporators: Samuel Waxman, J. A. Lehman and Sydney B. McGee—New York City.

Harlem Truck Tire Corporation, to deal in automobile tires. $3,000. Principal office, 360 East 136th street, New York, N. Y. Incorporators: B. Schloer, T. Fisher and A. Foster.

Jackson Tire Co., Inc., to deal in tires. $1,000. Principal office, Brooklyn, N. Y. Incorporators: C. S. Lubin—New York, N. Y.; C. Segal and F. Klein—Brooklyn, N. Y.

Hygienic Rubber Manufacturing Co., Inc., to manufacture rubber goods. $5,000. Principal office, 429 Broome street, New York, N. Y. Incorporators: J. H. Aldred, president; A. C. Aldred, secretary—Clifton, New Jersey; J. Pastore, treasurer—Brooklyn, N. Y.

Tiffany Corporation, to manufacture automobile tires. $50,000. Principal office, Rochester, New York. Incorporators: D. H. Tiffany, H. R. Tiffany and G. A. Fitsche—Rochester, New York.

NEW JERSEY

Southern Tire Selling Co., Inc. $100,000. Principal office, 150 Nassau street, New York, N. Y. A. H. Cubberley, president; J. A. Sands, vice president; E. W. Wiggins, secretary and treasurer.

OHIO

Royal Tire & Auto Service Co., to deal in tires. 250 shares, no par value. Principal office, Cleveland, Ohio. Incorporators: J. H. Smart, C. B. Ford, L. J. Ford and D. M. Connor.

Jordan Tire & Rubber Co., to manufacture and deal in tires and tubes. $10,000. Incorporators: J. A. Elden, A. M. Jordan, W. V. Peters, G. H. Field and W. Bradfield. Principal office, 2430 Euclid avenue, Cleveland, Ohio.

Canton Tire Service Co., to deal in tires and tubes. $10,000. Principal office, 537 Cleveland avenue, N. W., Canton, Ohio. Incorporators: E. F. Cockley, C. E. Tritt, E. E. Schuster and L. W. Rogers.

Akron Trading Co., to deal in rubber. $50,000. Principal office, Akron, Ohio. Incorporators: N. S. Noble, P. Davis, A. N. Burnett and R. E. Frazer.

McGee Rubber Heel Co., to manufacture rubber heels. $50,000. Principal office, 36 Main street, Newark. Incorporators: J. McGee, J. E. Smith, J. Dolan and J. P. Murphy.

Akron Rubber Washboard Co. $10,000. Principal office, Akron, Ohio. Incorporators: Albert Bicecker and Bessie Bicecker.

Cincinnati Rebuilt Tire Co. $10,000. Incorporators: James W. Knoblock and Jacob Greenfield.

WASHINGTON

Pacific Rubber Company of Seattle. $500,000. Incorporators: Fred F. Moore, J. W. Collins and Moses Katow. Principal office, Seattle, Oregon.

DISSOLUTION

Bolster Tire Sales Corp., Syracuse, N. Y.

Trade Marks

[The following are trade-mark applications pertinent to our field pending in the United States Patent Office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Marks Company, Barrister Building, Washington, D. C. or Bush Building, 130 West 42 Street, New York, trade-mark specialists. As an additional service feature to its readers this Journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering.]

HI-WAY—No. 169,582. Lawrence A. Finstick, doing business as Hi-Way Laboratories, La Porte, Ind. For self vulcanizing tire patch.

MANHASSET—No. 170,439. Manhasset Manufacturing Company, Providence, R. I. For cotton tire fabrics in the piece.

BEAVER—No. 170,267. The Badger Rubber Works, Milwaukee and Cudahy, Wis. For non-metallic tires.

GOTHAM—No. 175,589. Globe Rubber Tire Manufacturing Co., Trenton, N. J. For non-metallic pneumatic tires and inner tubes.

TAXICORD—No. 172,472. The B. F. Goodrich Company, N. Y. C. For pneumatic tire casings made of rubber combined with fabric.

DOSCAT—No. 172,260. Doscat Tire & Rubber Corporation, Rochester, N. Y. For rubber tires.

BE WELL HEELED—No. 171,969. Taunton Rubber Company, Taunton, Mass. For rubber heels.

ROVER—No. 167,817. The Ideal Tire and Rubber Company, Cleveland, O. For vehicle tires of rubber and rubber and fabric, inner tubes, tire casings, and shoes, and repair parts, for use in connection with the foregoing, namely, lace on boots, hookon boots, reliners, blow out patches, cementless patches, cord patches, and valve patches.